K 14

```
UUU         UUU  TTTTTTTTTTTTTTT    IIIIIIIII   LLL                 333333333        222222222
UUU         UUU  TTTTTTTTTTTTTTT    IIIIIIIII   LLL                 333333333        222222222
UUU         UUU  TTTTTTTTTTTTTTT    IIIIIIIII   LLL                 333333333        222222222
UUU         UUU        TTT             III      LLL              333         333  222         222
UUU         UUU        TTT             III      LLL              333         333  222         222
UUU         UUU        TTT             III      LLL              333         333  222         222
UUU         UUU        TTT             III      LLL                          333              222
UUU         UUU        TTT             III      LLL                          333              222
UUU         UUU        TTT             III      LLL                          333              222
UUU         UUU        TTT             III      LLL                       333              222
UUU         UUU        TTT             III      LLL                       333              222
UUU         UUU        TTT             III      LLL                       333              222
UUU         UUU        TTT             III      LLL                          333        222
UUU         UUU        TTT             III      LLL                          333        222
UUU         UUU        TTT             III      LLL                          333        222
UUU         UUU        TTT             III      LLL              333         333     222
UUU         UUU        TTT             III      LLL              333         333     222
UUU         UUU        TTT             III      LLL              333         333     222
UUUUUUUUUUUUUUU        TTT          IIIIIIIII   LLLLLLLLLLLLLLL     333333333     222222222222222
UUUUUUUUUUUUUUU        TTT          IIIIIIIII   LLLLLLLLLLLLLLL     333333333     222222222222222
UUUUUUUUUUUUUUU        TTT          IIIIIIIII   LLLLLLLLLLLLLLL     333333333     222222222222222
```

```
  SSSSSSSS  EEEEEEEEEE    AAAAAA    RRRRRRRR      CCCCCCCC  HH      HH
  SSSSSSSS  EEEEEEEEEE    AAAAAA    RRRRRRRR      CCCCCCCC  HH      HH
SS          EE          AA      AA  RR      RR  CC          HH      HH
SS          EE          AA      AA  RR      RR  CC          HH      HH
SS          EE          AA      AA  RR      RR  CC          HH      HH
SS          EE          AA      AA  RR      RR  CC          HH      HH
  SSSSSS    EEEEEEEE    AA      AA  RRRRRRRR    CC          HHHHHHHHHH
  SSSSSS    EEEEEEEE    AA      AA  RRRRRRRR    CC          HHHHHHHHHH
        SS  EE          AAAAAAAAAA  RR  RR      CC          HH      HH
        SS  EE          AAAAAAAAAA  RR  RR      CC          HH      HH
        SS  EE          AA      AA  RR    RR    CC          HH      HH      ....
        SS  EE          AA      AA  RR    RR    CC          HH      HH      ....
SSSSSSSS    EEEEEEEEEE  AA      AA  RR      RR    CCCCCCCC  HH      HH      ....
SSSSSSSS    EEEEEEEEEE  AA      AA  RR      RR    CCCCCCCC  HH      HH      ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

```
;  1     0001  0 MODULE search (                ! Search file(s) for a string utility
;  2     0002  0                                IDENT = 'V04-000',
;  3     0003  0                                MAIN = main
;  4     0004  0                                ) =
;  5     0005  1 BEGIN
;  6     0006  1
;  7     0007  1 !
;  8     0008  1 !**********************************************************************
;  9     0009  1 !*                                                                    *
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; 27     0027  1 !*                                                                    *
; 28     0028  1 !*                                                                    *
; 29     0029  1 !**********************************************************************
; 30     0030  1
; 31     0031  1 !++
; 32     0032  1 ! FACILITY:  SEARCH
; 33     0033  1 !
; 34     0034  1 ! ABSTRACT:
; 35     0035  1 !
; 36     0036  1 !       This utility program searchs a file or files for a specified
; 37     0037  1 !       string and lists all occurrences.
; 38     0038  1 !
; 39     0039  1 ! ENVIRONMENT:
; 40     0040  1 !
; 41     0041  1 !       VAX/VMS operating system, unprivileged user mode utility,
; 42     0042  1 !       operates at non-AST level.
; 43     0043  1 !
; 44     0044  1 ! AUTHOR:  Len Kawell,  CREATION DATE:  22 Dec 1978
; 45     0045  1 !
; 46     0046  1 ! Modified by:
; 47     0047  1 !
; 48     0048  1 !       V03-004 CWH3004         CW Hobbs                9-Aug-1984
; 49     0049  1 !               Change output formatting routines to support eight-
; 50     0050  1 !               bit characters.
; 51     0051  1 !
; 52     0052  1 !       V03-003 AEW0001         Anne E. Warner          1-May-1984
; 53     0053  1 !               Add support for search lists.
; 54     0054  1 !                 - remove related name block from RMS definitions.
; 55     0055  1 !                 - add argument SCAN_CONTEXT to LIB$FILE_SCAN for
; 56     0056  1 !                   sticky search lists.
; 57     0057  1 !
```

```
;    58     0058  1 !       V03-002 CWH0015         CW Hobbs                8-Sep-1982
;    59     0059  1 !               Enable /STATISTICS
;    60     0060  1 !
;    61     0061  1 !       V03-001 CWH0014         CW Hobbs                22-Mar-1982
;    62     0062  1 !               Change WRITEERR to SEVERE so that only one message is
;    63     0063  1 !               printed when unable to write the output.
;    64     0064  1 !
;    65     0065  1 !       V02-013 CWH0013         CW Hobbs                20-Feb-1982
;    66     0066  1 !               Add nambufs for output file so that the file name is
;    67     0067  1 !               available for error messages.  Change output segmenting
;    68     0068  1 !               to avoid record too big errors.
;    69     0069  1 !
;    70     0070  1 !       V02-012 CWH0012         CW Hobbs                2-Feb-1982
;    71     0071  1 !               Use LIB$FILE_SCAN instead of $PARSE and $SEARCH to
;    72     0072  1 !               perform like other DCL commands.
;    73     0073  1 !
;    74     0074  1 !       V02-011 CWH0009         CW Hobbs                25-Jan-1982
;    75     0075  1 !               Make error messages for insufficient virtual memory
;    76     0076  1 !               more meaningful.
;    77     0077  1 !
;    78     0078  1 !       V02-010 CWH0008         CW Hobbs                18-Jan-1982
;    79     0079  1 !               Use shared messages where possible, add WRITEERR message.
;    80     0080  1 !
;    81     0081  1 !       V02-009 CWH0007         CW Hobbs                14-Dec-1981
;    82     0082  1 !               Fix loop if no directory in resultant string for EXCLUDE.
;    83     0083  1 !
;    84     0084  1 !       V02-008 CWH0006         CW Hobbs                13-Dec-1981
;    85     0085  1 !               Remove dummy routine.  Do $TRNLOG on /EXCLUDE file
;    86     0086  1 !               names.  Correct problem with /WINDOW=0.  Remove
;    87     0087  1 !               some code for testing.
;    88     0088  1 !
;    89     0089  1 !       V02-007 CWH0004         CW Hobbs                30-Nov-1981
;    90     0090  1 !               Speedups, make /STATISTICS a conditional assembly
;    91     0091  1 !               option.  Restructure for expression matches.
;    92     0092  1 !
;    93     0093  1 !       V02-006 CWH0002         CW Hobbs                28-Oct-1981
;    94     0094  1 !                 Change FOR$CNV_IN_I to OTS$CVT_TI_L entry.  Add more
;    95     0095  1 !               error codes.  Remove MBC from input FAB, use process
;    96     0096  1 !               defaults.  Remove filename header from between windows and
;    97     0097  1 !               change window separator to '********'.  Put output record in
;    98     0098  1 !               several segments if longer than mrs of output file, also
;    99     0099  1 !               check status of rms_put operation.
;   100     0100  1 !                 Make search-string input parameter a list, move match
;   101     0101  1 !               check to separate routine, add /MATCH qualifier to
;   102     0102  1 !               set sense of match.
;   103     0103  1 !                 Redo windowing.  Save vector of RFA's rather than records.
;   104     0104  1 !               Use locate mode exclusively, set SQO only if no prev recs.
;   105     0105  1 !               Replace /ADDITIONAL and /PREVIOUS with /WINDOW qualifier.
;   106     0106  1 !               Print filename only if /WINDOW=0 is specified.
;   107     0107  1 !                 Improve error messages, especially I/O error signalling.
;   108     0108  1 !               Change truncate error to one per file, not one per record.
;   109     0109  1 !                 Other new qualifiers:
;   110     0110  1 !                       /EXACT      - use exact case matches
;   111     0111  1 !                       /EXCLUDE    - omit list of files from search
;   112     0112  1 !                       /FORMAT     - convert control chars unless disabled
;   113     0113  1 !                       /HEADING    - give control of printing of heading
;   114     0114  1 !                       /LOG        - signal filenames searched
```

```
;  115          0115  1 ;                    /NUMBERS    - print source line #'s
;  116          0116  1 ;                    /REMAINING  - print from match to EOF
;  117          0117  1 ;                    /STATISTICS - print some access information
;  118          0118  1 ;
;  119          0119  1 ;       V02-005 CWH0001         CW Hobbs                24-Aug-1981
;  120          0120  1 ;               Define external routines as general addressing mode.
;  121          0121  1 ;               Display the filespec header whenever a list of
;  122          0122  1 ;               input filenames is given.
;  123          0123  1 ;
;  124          0124  1 ;       V004    TMH0004         Tim Halvorsen           29-Jun-1981
;  125          0125  1 ;               Increase size of input buffer.  Open input file for
;  126          0126  1 ;               shared read/write access.  Do not display the filespec
;  127          0127  1 ;               header if non-wild search.
;  128          0128  1 ;
;  129          0129  1 ;       V02-003 CNH0032         Chris Hume              16-Apr-1980
;  130          0130  1 ;               Added windowing and (new) CLI callback.
;  131          0131  1 ;
;  132          0132  1 ;       V02-002                 Len Kawell              14-Mar-1980
;  133          0133  1 ;               General cleanup, fixups, and added command line parameters.
;  134          0134  1 ;
;  135          0135  1 ;       V02-001                 B.L. Schreiber          18-May-1979
;  136          0136  1 ;               Add LIB$SIGNAL to external routines.
;  137          0137  1 ;
;  138          0138  1 ;--
```

```
;  140          0139  1 !
;  141          0140  1 ! Include files
;  142          0141  1 !
;  143          0142  1 LIBRARY
;  144          0143  1     'SYS$LIBRARY:STARLET';                  ! VAX/VMS common definitions
;  145          0144  1
;  146          0145  1 !
;  147          0146  1 ! Define the compile-time switches used for conditional assemblies
;  148          0147  1 !
;  149          0148  1 LITERAL
;  150          0149  1     switch_statistics   = 1;                ! Include the /STATISTICS code
;  151          0150  1 !
;  152          0151  1 ! Structure declarations
;  153          0152  1 !
;  154          0153  1 STRUCTURE
;  155          0154  1
;  156          0155  1         bblockvector [I, O, P, S, E; N, BS] =
;  157          0156  1                 [N*BS]
;  158          0157  1                 ((bblockvector+I*BS)+O)<P,S,E>;
;  159          0158  1 !
;  160          0159  1 ! Macros
;  161          0160  1 !
;  162          0161  1 MACRO
;  163          0162  1
;  164          0163  1     dsc_long1 = 0,0,32,0 %,                 ! First longword of descriptor
;  165          0164  1     dsc_dynam = dsc$k_class_d^24 OR dsc$k_dtype_t^16 %,  ! dynamic desc
;  166          0165  1
;  167          0166  1     ! Define shorthand for a single initialized dynamic string desc
;  168          0167  1     !
;  169        M 0168  1     dyn_str_desc = BLOCK [dsc$k_d_bln,BYTE]
;  170        M 0169  1                         PRESET( [dsc$b_class] = dsc$k_class_d,
;  171          0170  1                                 [dsc$b_dtype] = dsc$k_dtype_t) %,
;  172          0171  1
;  173          0172  1     ! Define macro for a single initialized static string desc.
;  174          0173  1     !
;  175        M 0174  1     stat_str_desc (L, A) = BLOCK [dsc$k_s_bln,BYTE]
;  176        M 0175  1                         PRESET( [dsc$b_class]   = dsc$k_class_s,
;  177        M 0176  1                                 [dsc$b_dtype]   = dsc$k_dtype_t,
;  178        M 0177  1                                 [dsc$w_length]  = (L),
;  179          0178  1                                 [dsc$a_pointer] = (A) ) %,
;  180          0179  1
;  181          0180  1     ! Define different psects for initialized and demand-zero storage.
;  182          0181  1     !
;  183          0182  1     OWN_CRF     = PSECT OWN    = $OWN$_CRF     (WRITE); OWN    %,
;  184          0183  1     OWN_DZRO    = PSECT OWN    = $OWN$_DZRO    (WRITE); OWN    %;
;  185          0184  1 !
;  186          0185  1 ! Define special linkages for very frequently called routines
;  187          0186  1 !
;  188          0187  1 LINKAGE
;  189          0188  1     JSB_FORACTDUM = JSB (REGISTER=2,REGISTER=3,REGISTER=0)
;  190          0189  1                         : NOPRESERVE(2,3,4,5)   PRESERVE(6,7,8,9)  NOTUSED(10,11),
;  191          0190  1     JSB_FORACTTEX = JSB (REGISTER=4,REGISTER=5,REGISTER=2)
;  192          0191  1                         : NOPRESERVE(2,3,4,5)   PRESERVE(6,7,8,9)  NOTUSED(10,11),
;  193          0192  1     JSB_FORPUT    = JSB (REGISTER=2,REGISTER=3,REGISTER=4)
;  194          0193  1                         : NOPRESERVE(2,3,4)   PRESERVE(5,6,7,8,9)  NOTUSED(10,11),
;  195          0194  1     JSB_GETNEXREC = JSB (REGISTER=3,REGISTER=4)
;  196          0195  1                         : NOPRESERVE(2)         NOTUSED(5,6,7,8,9,10,11),
```

```
;  197     0196  1      JSB_PUTOUT    = JSB (REGISTER=2,REGISTER=3)
;  198     0197  1                          : NOPRESERVE(2,3)          NOTUSED(6,7,8,9,10,11),
;  199     0198  1      JSB_STDMAT    = JSB (REGISTER=4,REGISTER=5)
;  200     0199  1                          : NOPRESERVE(2,3)          NOTUSED(9,10,11),
;  201     0200  1      JSB_UPCASE    = JSB (REGISTER=1, REGISTER=2, REGISTER=3)
;  202     0201  1                          : NOPRESERVE(2,3)          NOTUSED(4,5,6,7,8,9,10,11);
;  203     0202  1  !
;  204     0203  1  ! Table of contents
;  205     0204  1  !
;  206     0205  1  FORWARD ROUTINE
;  207     0206  1      main,                                          ! Main entry
;  208     0207  1      scan_success          : NOVALUE,               ! Action routine for file found
;  209     0208  1      scan_failure          : NOVALUE,               !    "      "     "  file error
;  210     0209  1      exclude_file,                                  ! Check exclude list
;  211     0210  1      validate_exclude_file : NOVALUE,               ! Verify that filename is OK
;  212     0211  1      locate_filename,                               ! Find filename field in name
;  213     0212  1      locate_version,                                ! Find version in filename
;  214     0213  1      match_file,                                    ! Compare filename strings
;  215     0214  1      search_one_file       : NOVALUE,               ! Open and search a file
;  216     0215  1      get_next_record       : JSB_GETNEXREC,         ! Read a record from the file
;  217     0216  1      advance_window        : NOVALUE,               ! Scroll the viewing window
;  218     0217  1      std_search_file       : NOVALUE,               ! Standard string matches
;  219     0218  1      std_match             : JSB_STDMAT,            ! See if search string present
;  220     0219  1      file_error,                                    ! Signal file I/O error
;  221     0220  1      upcase                : NOVALUE JSB_UPCASE,    ! Convert string to uppercase
;  222     0221  1      format_n_put          : NOVALUE JSB_FORPUT,    ! Format and put to output
;  223     0222  1      format_action_text    : JSB_FORACTTEX,         ! /FORMAT=TEXT routine
;  224     0223  1      format_action_dump    : JSB_FORACTDUM,         ! /FORMAT=DUMP & NONULLS
;  225     0224  1      srh$put_output        : NOVALUE JSB_PUTOUT;    ! Put record to output file
;  226     0225  1
;  227     0226  1  !
;  228     0227  1  ! External references
;  229     0228  1  !
;  230     0229  1  EXTERNAL ROUTINE
;  231     0230  1      lib$file_scan : addressing_mode(general),      ! Wildcard file searches
;  232     0231  1      lib$lookup_key: addressing_mode(general),      ! Keyword table lookup
;  233     0232  1      lib$put_output: addressing_mode(general),      ! Put stat to sys$output
;  234     0233  1      cli$get_value : addressing_mode(general),      ! Get qualifier value
;  235     0234  1      cli$present   : addressing_mode(general),      ! Get qualifier presence
;  236     0235  1      ots$cvt_ti_l  : addressing_mode(general),      ! ASCII decimal to longword
;  237     0236  1      str$get1_dx   : addressing_mode(general),      ! Allocate Dynamic String
;  238     0237  1      str$copy_dx   : addressing_mode(general),      ! Copy any class string
;  239     0238  1      lib$get_vm    : addressing_mode(general);      ! Gets memory
;  240     0239  1
;  241     0240  1  !
;  242     0241  1  ! Equated symbols
;  243     0242  1  !
;  244     0243  1  LITERAL
;  245     0244  1      true                  = 1,                     ! Routine value of TRUE
;  246     0245  1      false                 = 0,                     ! Routine value of FALSE
;  247     0246  1      max_infiles           = 136,                   ! Max files in SOURCE list
;  248     0247  1      max_srhstr            = 136,                   ! Max strings in STRING list
;  249     0248  1      max_exclude           = 136,                   ! Max files in EXCLUDE list
;  250     0249  1      io_buff_sz            = 2048,                  ! Input buffer size
;  251     0250  1      form_text             = 0,                     ! Default format
;  252     0251  1      form_passall          = 1,                     ! Pass all characters
;  253     0252  1      form_dump             = 2,                     ! Reformat, flag 8 bit chars
```

```
;  254          0253  1      form_nonulls        = 3;                    ! Like DUMP, but no nulls
;  255          0254  1
;  256          0255  1  EXTERNAL LITERAL                               ! Facility-specific message definitions
;  257          0256  1      srh$_badexcl,
;  258          0257  1      srh$_badexclnam,
;  259          0258  1      srh$_badform,
;  260          0259  1      srh$_badmatch,
;  261          0260  1      srh$_matched,
;  262          0261  1      srh$_nomatch,
;  263          0262  1      srh$_nofile,
;  264          0263  1      srh$_nomatches,
;  265          0264  1      srh$_nostring,
;  266          0265  1      srh$_nullfile,
;  267          0266  1      srh$_rfaerr,
;  268          0267  1      srh$_truncate,
;  269          0268  1      srh$_wdw_maxprev,
;  270          0269  1      srh$_wdw_maxprm;
;  271          0270  1
;  272          0271  1                                                 ! Shared message definitions
;  273        P 0272  1  $SHR_MSGDEF
;  274        P 0273  1      (srh, 215, local,
;  275        P 0274  1          (badlogic, error),
;  276        P 0275  1          (badvalue, error),
;  277        P 0276  1          (insvirmem, error),
;  278        P 0277  1          (openin, warning),
;  279        P 0278  1          (openout, error),
;  280        P 0279  1          (readerr, warning),
;  281          0280  1          (writeerr, severe));
;  282          0281  1
;  283          0282  1
;  284          0283  1  !
;  285          0284  1  ! OWN storage, initialized and demand-zero variables are defined
;  286          0285  1  ! in separate groups so that the linker will give us a demand-zero
;  287          0286  1  ! section rather than storing a bunch of zeroes in the image file
;  288          0287  1  !
;  289          0288  1  OWN_DZRO
;  290          0289  1      exp_name    : VECTOR [nam$c_maxrss, BYTE],  ! RMS expanded name buffer
;  291          0290  1      res_name    : VECTOR [nam$c_maxrss, BYTE],  ! RMS result name buffer
;  292          0291  1      out_exp_nam : VECTOR [nam$c_maxrss, BYTE],  ! RMS expanded name buffer
;  293          0292  1      out_res_nam : VECTOR [nam$c_maxrss, BYTE];  ! RMS result name buffer
;  294          0293  1
;  295          0294  1  OWN_CRF
;  296          0295  1      string_desc : dyn_str_desc,                 ! Input search string desc
;  297          0296  1      mod_desc    : dyn_str_desc,                 ! Modifier string descriptor
;  298          0297  1      tmp_desc    : stat_str_desc(0, 0),          ! Kosher desc for misc fcns
;  299          0298  1
;  300        P 0299  1      nam_block   : $NAM (                        ! File name block
;  301        P 0300  1                           RSA = res_name,        !  Result name addr
;  302        P 0301  1                           RSS = nam$c_maxrss,    !  Result name size
;  303        P 0302  1                           ESA = exp_name,        !  Expanded name addr
;  304          0303  1                           ESS = nam$c_maxrss),   !  Expanded name size
;  305        P 0304  1      fab         : $FAB(                         ! Input file FAB
;  306        P 0305  1                           FOP = NAM,             !  Open by name block
;  307        P 0306  1                           SHR = (GET,PUT,UPI),   !  Allow other readers/writers
;  308        P 0307  1                           DNA = UPLIT BYTE('*.*'),!  Default file spec.
;  309        P 0308  1                           DNS = 3,               !   (DNM doesn't like *'s)
;  310          0309  1                           NAM = nam_block),      !  Name block
```

```
;   311        P 0310  1     rab          : $RAB(                          ! Input file RAB
;   312        P 0311  1                         MBF = 3,                  !  Multi-buffer count
;   313        P 0312  1                         RAC = SEQ,                !  Will also use RFA as needed
;   314        P 0313  1                         ROP = (RAH,LOC),          !  Read-ahead, locate mode
;   315        P 0314  1                         USZ = io_buff_sz,         !  User buffer size
;   316        P 0315  1                         FAB = fab),               !  FAB addr
;   317        P 0316  1     out_nam_blk  : $NAM (                         ! File name block
;   318        P 0317  1                         RSA = out_res_nam,        !  Result name addr
;   319        P 0318  1                         RSS = nam$c_maxrss,       !  Result name size
;   320        P 0319  1                         ESA = out_exp_nam,        !  Expanded name addr
;   321        P 0320  1                         ESS = nam$c_maxrss),      !  Expanded name size
;   322        P 0321  1     outfab       : $FAB(                          ! Output file FAB
;   323        P 0322  1                         RAT = CR,                 !  Record attributes
;   324        P 0323  1                         DNA = UPLIT BYTE('SEARCH.LIS'), !  Default file spec.
;   325        P 0324  1                         DNS = 10,
;   326        P 0325  1                         NAM = out_nam_blk),       !  Name block
;   327        P 0326  1     outrab       : $RAB(                          ! Output file RAB
;   328        P 0327  1                         ROP = WBH,                !  Write-behind
;   329        P 0328  1                         FAB = outfab),            !  FAB addr
;   330        P 0329  1     !
;   331        P 0330  1     ! Build a keyword table for the FORMAT qualifier
;   332        P 0331  1     !
;   333        P 0332  1     format_keytbl       : VECTOR [9, LONG] PRESET (
;   334        P 0333  1                   [0] = 8,                        ! Entries + values
;   335        P 0334  1                   [1] = UPLIT BYTE (%ASCIC 'TEXT'),   ! String for TEXT
;   336        P 0335  1                   [2] = form_text,                ! Value for TEXT
;   337        P 0336  1                   [3] = UPLIT BYTE (%ASCIC 'PASSALL'),! String
;   338        P 0337  1                   [4] = form_passall,             ! Value
;   339        P 0338  1                   [5] = UPLIT BYTE (%ASCIC 'DUMP'),   ! String
;   340        P 0339  1                   [6] = form_dump,                ! Value
;   341        P 0340  1                   [7] = UPLIT BYTE (%ASCIC 'NONULLS'),! String
;   342        P 0341  1                   [8] = form_nonulls),            ! Value
;   343        P 0342  1     !
;   344        P 0343  1     ! Build a keyword table for the MATCH qualifier
;   345        P 0344  1     !
;   346        P 0345  1     match_keytbl        : VECTOR [9, LONG] PRESET (
;   347        P 0346  1                   [0] = 8,                        ! Entries + values
;   348        P 0347  1                   [1] = UPLIT BYTE (%ASCIC 'OR'),     ! String for OR
;   349        P 0348  1                   [2] = 0,                        ! Value for OR
;   350        P 0349  1                   [3] = UPLIT BYTE (%ASCIC 'NOR'),    ! String
;   351        P 0350  1                   [4] = 1,                        ! Value
;   352        P 0351  1                   [5] = UPLIT BYTE (%ASCIC 'AND'),    ! String
;   353        P 0352  1                   [6] = 2,                        ! Value
;   354        P 0353  1                   [7] = UPLIT BYTE (%ASCIC 'NAND'),   ! String
;   355        P 0354  1                   [8] = 3);                       ! Value
;   356        P 0355  1
;   357        P 0356  1     !
;   358        P 0357  1     ! Now define all the non-initialized variables
;   359        P 0358  1     !
;   360        P 0359  1     OWN_DZRO
;   361        P 0360  1         wdw_pre_recs,                   ! Previous records requested
;   362        P 0361  1         wdw_sub_recs,                   ! Subsequent records requested
;   363        P 0362  1         wdw_pre_cntr,                   ! Previous records available
;   364        P 0363  1         wdw_sub_cntr,                   ! Subsequent records to list
;   365        P 0364  1         wdw_pre_buff,                   ! Current io_buff index
;   366        P 0365  1         cnt_infile,                     ! Actual # of input files
;   367        P 0366  1         cnt_srhstr,                     ! Actual # of search strings
```

```
;  368          0367  1      cnt_exclude,                                ! Actual # of exclude files
;  369          0368  1      max_rec        : VOLATILE,                  ! Actual output max rec size
;  370          0369  1      format,                                     ! Code for output format
;  371          0370  1      fil_totmat,                                 ! Total matches in one file
;  372          0371  1      fil_linenum,                                ! Total lines in one file
;  373          0372  1      out_file_open : BYTE,                       ! An output file is open
;  374          0373  1      out_printing  : BYTE,                       ! Matched records to output
;  375          0374  1      wdw_previous  : BYTE,                       ! RFA windowing active
;  376          0375  1      wdw_zero     : BYTE,                        ! We have /WINDOW=0
;  377          0376  1      wdw_frame    : BYTE,                        ! Frame discontiguous windows
;  378          0377  1      wdw_ovfl     : BYTE,                        ! Window discontiguity flag
;  379          0378  1      qua_exact    : BYTE,                        ! Exact case match flag
;  380          0379  1      qua_log      : BYTE,                        ! Log filenames searched
;  381          0380  1      qua_numbers  : BYTE,                        ! Output line number
;  382          0381  1      qua_heading  : BYTE,                        ! Display names of files
;  383          0382  1      new_file     : BYTE,                        ! Just opened a new file
;  384          0383  1      found_file   : BYTE,                        ! Found at least one file flag
;  385          0384  1      found_any    : BYTE,                        ! Any matches found boolean
;  386          0385  1      fil_found    : BYTE,                        ! Match found in this file
;  387          0386  1      mat_and      : BYTE,                        ! Match is AND if true, OR if false
;  388          0387  1      mat_negate   : BYTE,                        ! Turns above to NAND and NOR
;  389          0388  1
;  390          0389  1      rfa_vec      : REF bblockvector [,rab$s_rfa],! RFA's for previous records
;  391          0390  1
;  392          0391  1      output_buff : REF VECTOR [,BYTE],           ! For reformatting
;  393          0392  1
;  394          0393  1      infile_desc :                               ! Array of input filenames
;  395          0394  1                   bblockvector [max_infiles, dsc$k_d_bln],
;  396          0395  1      srhstr_desc :                               ! Array of search strings
;  397          0396  1                   bblockvector [max_srhstr,  dsc$k_d_bln],
;  398          0397  1      exclude_desc :                              ! Array of exclude filenames
;  399          0398  1                   bblockvector [max_exclude, dsc$k_d_bln];
;  400          0399  1
;  401        L 0400  1  %IF switch_statistics
;  402          0401  1  %THEN
;  403          0402  1      OWN_DZRO
;  404          0403  1          !
;  405          0404  1          ! define the block for the GETJPI for statistics
;  406          0405  1          !
;  407          0406  1          qua_statistics,                 ! Give statistics
;  408          0407  1          stat_totchr,                            ! Total characters in all files
;  409          0408  1          stat_totrec,                            ! Total records in all files
;  410          0409  1          stat_totfil,                            ! Total files searched
;  411          0410  1          stat_totmat,                            ! Total matches found
;  412          0411  1          stat_totput,                            ! Total records put to output
;  413          0412  1          stat_jpi_bufio,                         ! $GETJPI deposits them here
;  414          0413  1          stat_jpi_cputim,
;  415          0414  1          stat_jpi_dirio,
;  416          0415  1          stat_jpi_pagefIts,
;  417          0416  1          stat_bufio,                             ! Saved from startup getjpi
;  418          0417  1          stat_cputim,
;  419          0418  1          stat_dirio,
;  420          0419  1          stat_pagefIts,
;  421          0420  1          stat_starttime : VECTOR [2, LONG];
;  422          0421  1
;  423          0422  1      OWN_CRF
;  424          0423  1          stat_jpi_block : VECTOR [13, LONG] INITIAL (
```

```
;  425          0424  1                          (JPI$_BUFIO^16 OR 4),   stat_jpi_bufio, 0,
;  426          0425  1                          (JPI$_CPUTIM^16 OR 4),  stat_jpi_cputim, 0,
;  427          0426  1                          (JPI$_DIRIO^16 OR 4),   stat_jpi_dirio, 0,
;  428          0427  1                          (JPI$_PAGEFLTS^16 OR 4),stat_jpi_pagefits, 0,
;  429          0428  1                          0);
;  430          0429  1 %FI ! switch_statistics
;  431          0430  1
;  432          0431  1 BIND
;  433          0432  1     stars_30 = UPLIT BYTE ('******************************'),
;  434          0433  1     null_str = %ASCID '';                       ! The null string
```

```
;  436          0434  1 ROUTINE main =
;  437          0435  1
;  438          0436  1 !++
;  439          0437  1 ! Functional description
;  440          0438  1 !
;  441          0439  1 !       This routine is the transfer point and central loop for the
;  442          0440  1 !       utility.  It retrieves filename(s), search string(s) and qualifiers
;  443          0441  1 !       from DCL, and looks up the files and calls the search routines.
;  444          0442  1 !
;  445          0443  1 ! Calling sequence
;  446          0444  1 !
;  447          0445  1 !       main ()
;  448          0446  1 !
;  449          0447  1 ! Input parameters
;  450          0448  1 !
;  451          0449  1 !       none
;  452          0450  1 !
;  453          0451  1 ! Routine value
;  454          0452  1 !
;  455          0453  1 !       Most severe error encountered during processing or SS$_NORMAL
;  456          0454  1 !
;  457          0455  1 !--
;  458          0456  2 BEGIN
;  459          0457  2
;  460          0458  2 LOCAL
;  461          0459  2     !
;  462          0460  2     ! Obtain memory for the input buffer and the output buffer
;  463          0461  2     ! Worst case size of output buffer is 6*input + 8 (when full
;  464          0462  2     ! length input is all -1's, /FORM=DUMP/NUMBERS)
;  465          0463  2     !
;  466          0464  2     out_buffer  : BLOCK [io_buff_sz*6+8, BYTE], ! For reformatting
;  467          0465  2     inp_buffer  : BLOCK [io_buff_sz, BYTE];     ! Input buffer
;  468          0466  2
;  469          0467  2 LOCAL
;  470          0468  2     wdw_1,                          ! Flag that first window parm
;  471          0469  2     wdw_2,                          ! Flag that 2 window parameters
;  472          0470  2     window_1,                       ! Value of window parm 1
;  473          0471  2     window_2,                       ! Value of window parm 2
;  474          0472  2     status,                         ! Error status
;  475          0473  2     keyval,                         ! Will receive keyword value
;  476          0474  2     scan_context;                   ! Sticky context argument for LIB$FILE_SCAN
;  477          0475  2
;  478          0476  2 BIND
;  479          0477  2     window_str = %ASCID 'WINDOW',               ! Qualifier keywords
;  480          0478  2     string_str = %ASCID 'STRING',
;  481          0479  2     source_str = %ASCID 'SOURCE';
;  482          0480  2
;  483          0481  2 !
;  484          0482  2 ! Get initial run statistics
;  485          0483  2 !
;  486        L 0484  2 %IF switch_statistics
;  487          0485  2 %THEN
;  488          0486  2     IF qua_statistics = cli$present(%ASCID 'STATISTICS')
;  489          0487  2     THEN
;  490          0488  3         BEGIN
;  491          0489  3
;  492          0490  4         IF NOT (status = $GETJPI (ITMLST=stat_jpi_block))
```

```
;  493     0491  1          THEN
;  494     0492  1              RETURN .status;
;  495     0493  1          IF NOT (status = $GETTIM (TIMADR=stat_starttime))
;  496     0494  1          THEN
;  497     0495  1              RETURN .status;
;  498     0496  1
;  499     0497  1          stat_bufio    = .stat_jpi_bufio;        ! copy from the JPI return variables
;  500     0498  1          stat_cputim   = .stat_jpi_cputim;
;  501     0499  1          stat_dirio    = .stat_jpi_dirio;
;  502     0500  1          stat_pagefits = .stat_jpi_pagefits;
;  503     0501  1          END;
;  504     0502  %FI
;  505     0503  !
;  506     0504  ! Set some pointers to the local data for this procedure
;  507     0505  !
;  508     0506
;  509     0507  rab [rab$l_ubf] = inp_buffer;                     ! Address of user buffer
;  510     0508  output_buff = out_buffer;                         ! Buffer for reformatting
;  511     0509
;  512     0510  !
;  513     0511  ! Get the simple qualifiers
;  514     0512  !
;  515     0513  qua_exact      = cli$present(%ASCID 'EXACT');     ! Want lower case matches?
;  516     0514  qua_log        = cli$present(%ASCID 'LOG');       ! Show filenames?
;  517     0515  qua_numbers    = cli$present(%ASCID 'NUMBERS');   ! Want line numbers?
;  518     0516  qua_heading    = cli$present(%ASCID 'HEADING');   ! Print file headings?
;  519     0517
;  520     0518  !
;  521     0519  ! Get the window size parameters
;  522     0520  !
;  523     0521  IF wdw_1 = cli$get_value(window_str, mod_desc)
;  524     0522  THEN
;  525     0523          BEGIN
;  526     0524          IF NOT ots$cvt_ti_l(mod_desc,window_1)
;  527     0525          THEN
;  528     0526              BEGIN
;  529     0527              SIGNAL (srh$_badvalue, 1, mod_desc);
;  530     0528              RETURN (srh$_badvalue OR %X'10000000');  ! Inhibit DCL PUTMSG
;  531     0529              END;
;  532     0530          IF .window_1 LSS 0              ! BLISS will optimize these together
;  533     0531          THEN
;  534     0532              BEGIN
;  535     0533              SIGNAL (srh$_badvalue, 1, mod_desc);
;  536     0534              RETURN (srh$_badvalue OR %X'10000000');
;  537     0535              END;
;  538     0536          END;
;  539     0537
;  540     0538  ! Try to get the second window parameter
;  541     0539  !
;  542     0540  IF wdw_2 = cli$get_value(window_str, mod_desc)
;  543     0541  THEN
;  544     0542          BEGIN
;  545     0543          IF NOT ots$cvt_ti_l(mod_desc, window_2)
;  546     0544          THEN
;  547     0545              BEGIN
;  548     0546              SIGNAL (srh$_badvalue, 1, mod_desc);
;  549     0547              RETURN (srh$_badvalue OR %X'10000000');
```

```
;  550     0548  3              END;
;  551     0549  3          IF .window_2 LSS 0              ! BLISS will optimize these together
;  552     0550  3          THEN
;  553     0551  4              BEGIN
;  554     0552  4              SIGNAL (srh$_badvalue, 1, mod_desc);
;  555     0553  4              RETURN (srh$_badvalue OR %X'10000000');
;  556     0554  3              END;
;  557     0555  2          END;
;  558     0556  2
;  559     0557  2  IF cli$get_value(window_str, mod_desc) ! Make sure no more in list.
;  560     0558  2  THEN
;  561     0559  2      RETURN srh$_wdw_maxprm;
;  562     0560  2
;  563     0561  2  ! Set the appropriate values for previous recs and subsequent records.  We
;  564     0562  2  ! assume that WDW_PRE_RECS and WDW_SUB_RECS are initially zero.
;  565     0563  2  !
;  566     0564  2  IF .wdw_1                              ! If /NOWINDOW we have nothing to do.
;  567     0565  2  THEN
;  568     0566  3      BEGIN
;  569     0567  3      IF .wdw_2                          ! We have /WINDOW=(pre,sub) format.
;  570     0568  3      THEN
;  571     0569  4          BEGIN
;  572     0570  4          wdw_pre_recs = .window_1;
;  573     0571  4          wdw_sub_recs = .window_2;
;  574     0572  4          END
;  575     0573  3      ELSE                               ! We have /WINDOW=total format
;  576     0574  4          BEGIN
;  577     0575  4          IF .window_1 EQL 0
;  578     0576  4          THEN
;  579     0577  4              wdw_zero = 1               ! Set flag for /WINDOW=0 option
;  580     0578  4          ELSE
;  581     0579  5              BEGIN
;  582     0580  5              LOCAL                      ! Help BLISS optimize
;  583     0581  5                  tmp;
;  584     0582  5              tmp = .window_1 -1; ! Count the matched line as one of them
;  585     0583  5              wdw_pre_recs = .tmp / 2;
;  586     0584  5              wdw_sub_recs = .tmp - .wdw_pre_recs;
;  587     0585  4              END;
;  588     0586  3          END;
;  589     0587  2      END;
;  590     0588  2
;  591     0589  3  IF       (.wdw_pre_recs GTR 0)
;  592     0590  3      OR   (.wdw_sub_recs GTR 0)
;  593     0591  2  THEN
;  594     0592  2      wdw_frame = true;                  ! Don't say "***************" for /WINDOW=1
;  595     0593  2
;  596     0594  2  IF cli$present(%ASCID 'REMAINING')     ! Do we want match to end of file?
;  597     0595  2  THEN
;  598     0596  2      wdw_sub_recs = 2^31 - 1;           ! Set to something akin to infinity
;  599     0597  2
;  600     0598  2  !
;  601     0599  2  ! Open the output file
;  602     0600  2  !
;  603     0601  2  IF out_file_open = cli$get_value(%ASCID 'OUTPUT', mod_desc)
;  604     0602  2  THEN
;  605     0603  3          BEGIN
;  606     0604  3          outfab [fab$b_fns] = .mod_desc [dsc$w_length];
```

```
;  607     0605  3          outfab [fab$l_fna] = .mod_desc [dsc$a_pointer];
;  608     0606  4          IF NOT (status = $CREATE(FAB = outfab))
;  609     0607  3          THEN
;  610     0608  3              RETURN file_error (srh$_openout,.status,outfab,.outfab [fab$l_stv]);
;  611     0609  4          IF NOT (status = $CONNECT(RAB = outrab))
;  612     0610  3          THEN
;  613     0611  3              RETURN file_error (srh$_openout,.status,outfab,.outrab [rab$l_stv]);
;  614     0612  3          max_rec = .outfab [fab$w_mrs];
;  615     0613  3          IF .max_rec EQL 0 THEN max_rec = 2^15-1;
;  616     0614  2          END;
;  617     0615  2
;  618     0616  2      out_printing = (NOT .wdw_zero) AND .out_file_open; ! Do we print matched lines?
;  619     0617  2
;  620     0618  2      !
;  621     0619  2      ! Get the /MATCH qualifier value, set the bit vector
;  622     0620  2      !
;  623     0621  2      cli$get_value(%ASCID 'MATCH', string_desc);      ! Get the string
;  624     0622  2      upcase(.string_desc [dsc$w_length], .string_desc [dsc$a_pointer],
;  625     0623  2                                          .string_desc [dsc$a_pointer]);
;  626     0624  3      IF NOT (status = lib$lookup_key (string_desc, match_keytbl, keyval))
;  627     0625  3      THEN
;  628     0626  3          SIGNAL_STOP (srh$_badmatch, 0, .status, 1, string_desc);
;  629     0627  3
;  630     0628  3      CASE .keyval FROM 0 TO 3 OF
;  631     0629  3          SET
;  632     0630  3              [0] :   ;                       ! 'OR' - No action, both zero already
;  633     0631  3              [1] :   mat_negate = true;      ! 'NOR' - mat_and is already zero
;  634     0632  3              [2] :   mat_and = true;         ! 'AND' - mat_negate is already zero
;  635     0633  3              [3] :   BEGIN                   ! 'NAND' - We have to set them both
;  636     0634  3                      mat_and = true;
;  637     0635  3                      mat_negate = true;
;  638     0636  3                      END;
;  639     0637  3          TES;
;  640     0638  3
;  641     0639  2      !
;  642     0640  2      ! If there are no previous records we can set for sequential only
;  643     0641  2      !
;  644     0642  2
;  645     0643  2      IF .wdw_pre_recs EQL 0
;  646     0644  2      THEN
;  647     0645  2          fab [fab$v_sqo] = true
;  648     0646  2      ELSE
;  649     0647  2          BEGIN
;  650     0648  2          wdw_previous = true;
;  651     0649  2          !
;  652     0650  2          ! Obtain memory for the vector of RFA's
;  653     0651  2          !
;  654     0652  4          IF NOT (status = lib$get_vm(%REF((.wdw_pre_recs + 1)*rab$s_rfa), rfa_vec))
;  655     0653  4          THEN
;  656     0654  4              SIGNAL_STOP (srh$_wdw_maxprev, 0, .status);      ! Buffer max exceeded.
;  657     0655  3          END;
;  658     0656  3
;  659     0657  2      !
;  660     0658  2      ! Get the /FORMAT qualifier value, set the variable
;  661     0659  2      !
;  662     0660  2      cli$get_value(%ASCID 'FORMAT', string_desc);     ! Get the string
;  663     0661  2      upcase(.string_desc [dsc$w_length], .string_desc [dsc$a_pointer],
```

```
;  664     0662  2                                        .string_desc [dsc$a_pointer]);
;  665     0663  3          IF NOT (status = lib$lookup_key (string_desc, format_keytbl, format))
;  666     0664  2          THEN
;  667     0665  2              SIGNAL_STOP (srh$_badform, 0, .status, 1, string_desc);
;  668     0666  2
;  669     0667  2          !
;  670     0668  2          ! DCL parameter P1, SOURCE
;  671     0669  2          !
;  672     0670  2          ! Get all the input file names so that we will know if a list is specified.
;  673     0671  2          ! Max_infiles is large enough so that is is IMPOSSIBLE to overflow
;  674     0672  2          !
;  675     0673  2          WHILE .cnt_infile LSS max_infiles
;  676     0674  2          DO
;  677     0675  3              BEGIN
;  678     0676  3              infile_desc [.cnt_infile, dsc_long1] = dsc_dynam;   ! Init to dynamic desc
;  679     0677  4              IF NOT (status = cli$get_value(source_str,
;  680     0678  4                                             infile_desc [.cnt_infile, dsc$w_length]) )
;  681     0679  3              THEN
;  682     0680  3                  EXITLOOP;
;  683     0681  3              cnt_infile = .cnt_infile+1;
;  684     0682  2              END;
;  685     0683  2
;  686     0684  2          !
;  687     0685  2          ! The command requires SOURCE, but just in case someone mungs the CLD file
;  688     0686  2          !
;  689     0687  2          IF .cnt_infile LEQ 0
;  690     0688  2          THEN
;  691     0689  2              RETURN srh$_nofile;
;  692     0690  2
;  693     0691  2          !
;  694     0692  2          ! DCL parameter P2, STRING
;  695     0693  2          !
;  696     0694  2          ! Get the all the search string entries
;  697     0695  2          ! Max_srhstr is large enough so that is is IMPOSSIBLE to overflow
;  698     0696  2          !
;  699     0697  2          WHILE .cnt_srhstr LSS max_srhstr
;  700     0698  2          DO
;  701     0699  3              BEGIN
;  702     0700  4              IF NOT (status = cli$get_value(string_str, string_desc))
;  703     0701  3              THEN
;  704     0702  3                  EXITLOOP;
;  705     0703  3              !
;  706     0704  3              ! Copy or upcase the search string
;  707     0705  3              !
;  708     0706  3              srhstr_desc [.cnt_srhstr, dsc_long1] = dsc_dynam;   ! Init to dynamic desc
;  709     0707  3
;  710     0708  3              IF .qua_exact THEN                      ! Copy to descriptor array
;  711     0709  3                  str$copy_dx (srhstr_desc [.cnt_srhstr,dsc$w_length],
;  712     0710  3                               string_desc [dsc$w_length])
;  713     0711  3              ELSE
;  714     0712  4                  BEGIN                               ! Upcase into the descriptor array
;  715     0713  4                  str$get1_dx (string_desc [dsc$w_length], ! Allocate Destination String
;  716     0714  4                               srhstr_desc [.cnt_srhstr,dsc$w_length]);
;  717     0715  4                  upcase(                             ! Uppercase search string
;  718     0716  4                         .srhstr_desc [.cnt_srhstr, dsc$w_length],   !  Length of source
;  719     0717  4                         .string_desc [dsc$a_pointer],               !  Source addr
;  720     0718  4                         .srhstr_desc [.cnt_srhstr, dsc$a_pointer]); !  Destination addr
```

```
;  721     0719  3          END;
;  722     0720  3
;  723     0721  3      cnt_srhstr = .cnt_srhstr+1;
;  724     0722  3      END;
;  725     0723  2
;  726     0724  2      !
;  727     0725  2      ! The command requires STRING, but just in case someone changes the CLD file
;  728     0726  2      !
;  729     0727  2      IF .cnt_srhstr LEQ 0
;  730     0728  2      THEN
;  731     0729  2          RETURN srh$_nostring;
;  732     0730  2
;  733     0731  2      !
;  734     0732  2      ! DCL qualifier /EXCLUDE
;  735     0733  2      !
;  736     0734  2      ! Get the all the exclude filenames
;  737     0735  2      ! Max_exclude is large enough so that is is IMPOSSIBLE to overflow
;  738     0736  2      !
;  739     0737  2      WHILE .cnt_exclude LSS max_exclude
;  740     0738  2      DO
;  741     0739  3          BEGIN
;  742     0740  3          LOCAL
;  743     0741  3              buf : VECTOR [nam$c_maxrss, BYTE],
;  744     0742  3              inter_desc : BLOCK [8, BYTE],           ! Intermediate name
;  745     0743  3              result_desc : BLOCK [8, BYTE];
;  746     0744  3
;  747     0745  4          IF NOT (status = cli$get_value(%ASCID 'EXCLUDE', string_desc))
;  748     0746  3          THEN
;  749     0747  3              EXITLOOP;
;  750     0748  3
;  751     0749  3          ! Don't let device and directory sneak in with a logical name
;  752     0750  3          !
;  753     0751  3          CH$MOVE (8, string_desc, inter_desc);       ! Start with the given name
;  754     0752  3          CH$MOVE (4, tmp_desc, result_desc);         ! Static string desc info
;  755     0753  3          DO
;  756     0754  4              BEGIN
;  757     0755  4              result_desc [dsc$w_length] = nam$c_maxrss;
;  758     0756  4              result_desc [dsc$a_pointer] = buf;
;  759     0757  4              status = $trnlog (lognam = inter_desc, rsllen = result_desc, rslbuf = result_desc);
;  760     0758  4              IF NOT .status
;  761     0759  4              THEN
;  762     0760  4                  SIGNAL_STOP (.status);
;  763     0761  4              CH$MOVE (8, result_desc, inter_desc);   ! Ready to translate again
;  764     0762  4              END
;  765     0763  3          UNTIL .status EQL ss$_notran;
;  766     0764  3
;  767     0765  3          !
;  768     0766  3          ! Make sure that the filename has no device or directory.  Allow for
;  769     0767  3          ! alternate directory syntax of <dir>
;  770     0768  3          !
;  771     0769  3          IF      CH$FIND_CH(.result_desc [dsc$w_length],
;  772     0770  3                             .result_desc [dsc$a_pointer], ':') NEQ 0
;  773     0771  3              OR CH$FIND_CH(.result_desc [dsc$w_length],
;  774     0772  3                             .result_desc [dsc$a_pointer], ']') NEQ 0
;  775     0773  3              OR CH$FIND_CH(.result_desc [dsc$w_length],
;  776     0774  3                             .result_desc [dsc$a_pointer], '>') NEQ 0
;  777     0775  3          THEN
```

```
;  778          0776  3          SIGNAL_STOP (srh$_badexcl,1,result_desc);       ! Scream and shout
;  779          0777  3
;  780          0778  3      !
;  781          0779  3      ! Copy, upcase and validate the exclude filename
;  782          0780  3      !
;  783          0781  3      exclude_desc [.cnt_exclude, dsc_long1] = dsc_dynam; ! Init to dynamic desc
;  784          0782  3      validate_exclude_file (result_desc,exclude_desc [.cnt_exclude, dsc$w_length]);
;  785          0783  3      cnt_exclude = .cnt_exclude+1;
;  786          0784  2      END;
```

```
;   788          0785  2 !
;   789          0786  2 ! Search the input files
;   790          0787  2 !
;   791          0788  2 found_file = false;                          ! Nothing found yet
;   792          0789  2 found_any = false;
;   793          0790  2 scan_context = 0;                           ! Sticky context argument must be zero
;   794          0791  2 INCR ifx FROM 0 TO .cnt_infile-1                    ! Try all of out
;   795          0792  2 DO                                                  ! file spec.
;   796          0793  3         BEGIN
;   797          0794  3         fab [fab$l_fna] = .infile_desc [.ifx, dsc$a_pointer];    ! Set name addr
;   798          0795  3         fab [fab$b_fns] = .infile_desc [.ifx, dsc$w_length];     ! Set name size
;   799          0796  3         lib$file_scan (fab,                                      ! Do full wildcard scan
;   800          0797  3                        scan_success,                             ! Go here on success
;   801          0798  3                        scan_failure,                             ! Go here on failure
;   802          0799  3                        scan_context);                            ! Sticky context argument
;   803          0800  3         fab [fab$l_dna] = 0;                                     ! Allow sticky type
;   804          0801  2         END;
```

```
;  806        L 0802  2 %IF switch_statistics
;  807          0803  2 %THEN
;  808          0804  2 !
;  809          0805  2 ! Display the statistics if desired.
;  810          0806  2 !
;  811          0807  2 IF .qua_statistics
;  812          0808  2 THEN
;  813          0809  3     BEGIN
;  814          0810  3     BUILTIN
;  815          0811  3         SUBM;
;  816          0812  3     LOCAL
;  817          0813  3         quadtime : VECTOR [2, LONG],
;  818          0814  3         tim,
;  819          0815  3         tim_buf : VECTOR [16, BYTE],
;  820          0816  3         tim_desc : VECTOR [2, LONG],
;  821          0817  3         stat,
;  822          0818  3         out_buf : VECTOR [80,BYTE];
;  823          0819  3
;  824          0820  4     IF NOT (stat = $GETJPI (ITMLST=stat_jpi_block))
;  825          0821  3     THEN
;  826          0822  3         RETURN .stat;
;  827          0823  3
;  828          0824  3     tmp_desc [dsc$a_pointer] = out_buf;
;  829          0825  3     lib$put_output(null_str);
;  830          0826  3
;  831          0827  3     tmp_desc [dsc$w_length] = 80;
;  832        P 0828  4     IF NOT (stat = $FAO( %ASCID 'Files searched:        !10UL       Buffered I/O count:!10UL',
;  833          0829  4                 tmp_desc, tmp_desc, .stat_totfil, .stat_jpi_bufio-.stat_bufio))
;  834          0830  3     THEN
;  835          0831  3         RETURN .stat;   ! Signal the error
;  836          0832  3     lib$put_output(tmp_desc);
;  837          0833  3
;  838          0834  3     tmp_desc [dsc$w_length] = 80;
;  839        P 0835  4     IF NOT (stat = $FAO( %ASCID 'Records searched:      !10UL       Direct I/O count:  !10UL',
;  840          0836  4                 tmp_desc, tmp_desc, .stat_totrec, .stat_jpi_dirio-.stat_dirio))
;  841          0837  3     THEN
;  842          0838  3         RETURN .stat;   ! Signal the error
;  843          0839  3     lib$put_output(tmp_desc);
;  844          0840  3
;  845          0841  3     tmp_desc [dsc$w_length] = 80;
;  846        P 0842  4     IF NOT (stat = $FAO( %ASCID 'Characters searched:   !10UL       Page faults:       !10UL',
;  847          0843  4                 tmp_desc, tmp_desc, .stat_totchr, .stat_jpi_pagefIts-.stat_pagefIts))
;  848          0844  3     THEN
;  849          0845  3         RETURN .stat;   ! Signal the error
;  850          0846  3     lib$put_output(tmp_desc);
;  851          0847  3
;  852          0848  3     tmp_desc [dsc$w_length] = 80;
;  853          0849  3     tim = .stat_jpi_cputim-.stat_cputim;                ! get the elapsed CPU time
;  854        P 0850  4     IF NOT (stat = $FAO( %ASCID 'Records matched:       !10UL       Elapsed CPU time:!3UL !2ZL:!2ZL:!2ZL.!2Z
;  855        P 0851  4                 tmp_desc, tmp_desc, .stat_totmat,
;  856        P 0852  4                 (.tim/(100*60*60*24)),              ! days
;  857        P 0853  4                 (.tim/(100*60*60)) MOD 24,          ! hours
;  858        P 0854  4                 (.tim/(100*60)) MOD 60,             ! minutes
;  859        P 0855  4                 (.tim/100) MOD 60,                  ! seconds
;  860          0856  4                 .tim MOD 100))                      ! hundredths of seconds
;  861          0857  3     THEN
;  862          0858  3         RETURN .stat;   ! Signal the error
```

```
;  863          0859  3     lib$put_output(tmp_desc);
```

```
;  865          0860  3     tim_desc [0] = 16;
;  866          0861  3     tim_desc [1] = tim_buf;
;  867          0862  4     IF NOT (stat = $GETTIM (TIMADR=quadtime))
;  868          0863  3     THEN
;  869          0864  3         RETURN .stat;   ! Signal the error
;  870          0865  3     SUBM (2, quadtime, stat_starttime, quadtime);
;  871          0866  4     IF NOT (stat = $ASCTIM (TIMLEN=tim_desc, TIMBUF=tim_desc, TIMADR=quadtime))
;  872          0867  3     THEN
;  873          0868  3         RETURN .stat;   ! Signal the error
;  874          0869  3
;  875          0870  3     tmp_desc [dsc$w_length] = 80;
;  876        P 0871  4     IF NOT (stat = $FAO( %ASCID 'Lines printed:          !10UL       Elapsed time:   !AS',
;  877          0872  4                 tmp_desc, tmp_desc, .stat_totput, tim_desc))
;  878          0873  3     THEN
;  879          0874  3         RETURN .stat;   ! Signal the error
;  880          0875  3     lib$put_output(tmp_desc);
;  881          0876  3
;  882          0877  2     END;
;  883          0878  2 %FI ! switch_statistics
;  884          0879  2
;  885          0880  2 IF .out_file_open                           ! All through writing
;  886          0881  2 THEN
;  887          0882  2     $CLOSE(FAB = outfab);
;  888          0883  2
;  889          0884  2 status = ss$_normal;
;  890          0885  2 IF NOT .found_any                           ! If no matches were found
;  891          0886  2 THEN
;  892          0887  2         IF .found_file                      ! set non-success status.
;  893          0888  2         THEN
;  894          0889  2             SIGNAL (status = srh$_nomatches)
;  895          0890  2         ELSE
;  896          0891  2             status = srh$_nofile;
;  897          0892  2
;  898          0893  2 RETURN .status;
;  899          0894  1 END;


                                        .TITLE  SEARCH
                                        .IDENT  \V04-000\

                                        .PSECT  $OWN$_CRF,NOEXE,2

                            00# 00000 STRING_DESC:
                                        .BYTE   0[2]
                          02  0E  00002        .BYTE   14, 2                                   ;
                                  00004        .BLKB   4
                            00# 00008 MOD_DESC:
                                        .BYTE   0[2]
                          02  0E  0000A        .BYTE   14, 2                                   ;
                                  0000C        .BLKB   4
                              0000  00010 TMP_DESC:
                                        .WORD   0
                          01  0E  00012        .BYTE   14, 1                                   ;
                        00000000  00014        .LONG   0                                       ;
                              02  00018 NAM_BLOCK:
                                        .BYTE   2
                              60  00019        .BYTE   96                                      ;
```

```
                FF  0001A          .BYTE   -1
                00  0001B          .BYTE   0
00000000'       0001C          .ADDRESS RES_NAME
                00  00020          .BYTE   0
                00  00021          .BYTE   0
                FF  00022          .BYTE   -1
                00  00023          .BYTE   0
00000000'       00024          .ADDRESS EXP_NAME
00000000        00028          .LONG   0
          0000# 0002C          .WORD   0[8]
          0000# 0003C          .WORD   0[3]
          0000# 00042          .WORD   0[3]
00000000        00048          .LONG   0
00000000        0004C          .LONG   0
                00  00050          .BYTE   0
                00  00051          .BYTE   0
                00  00052          .BYTE   0
                00  00053          .BYTE   0
                00  00054          .BYTE   0
                00  00055          .BYTE   0
               00# 00056          .BYTE   0[2]
00000000        00058          .LONG   0
00000000        0005C          .LONG   0
00000000        00060          .LONG   0
00000000        00064          .LONG   0
00000000        00068          .LONG   0
00000000        0006C          .LONG   0
00000000#       00070          .LONG   0[2]
                03  00078 FAB:    .BYTE   3
                50  00079          .BYTE   80
          0000  0007A          .WORD   0
01000000        0007C          .LONG   16777216
00000000        00080          .LONG   0
00000000        00084          .LONG   0
00000000        00088          .LONG   0
          0000  0008C          .WORD   0
                02  0008E          .BYTE   2
                43  0008F          .BYTE   67
00000000        00090          .LONG   0
                00  00094          .BYTE   0
                00  00095          .BYTE   0
                00  00096          .BYTE   0
                02  00097          .BYTE   2
00000000        00098          .LONG   0
00000000        0009C          .LONG   0
00000000'       000A0          .ADDRESS NAM_BLOCK
00000000        000A4          .LONG   0
00000000'       000A8          .ADDRESS P.AAA
                00  000AC          .BYTE   0
                03  000AD          .BYTE   3
          0000  000AE          .WORD   0
00000000        000B0          .LONG   0
          0000  000B4          .WORD   0
                00  000B6          .BYTE   0
                00  000B7          .BYTE   0
00000000        000B8          .LONG   0
00000000        000BC          .LONG   0
```

```
                0000  000C0          .WORD   0                                       ;
                  00  000C2          .BYTE   0                                       ;
                  00  000C3          .BYTE   0                                       ;
          00000000    000C4          .LONG   0                                       ;
                  01  000C8 RAB:     .BYTE   1                                       ;
                  44  000C9          .BYTE   68                                      ;
                0000  000CA          .WORD   0                                       ;
          00010200    000CC          .LONG   66048                                   ;
          00000000    000D0          .LONG   0                                       ;
          00000000    000D4          .LONG   0                                       ;
                0000# 000D8          .WORD   0[3]                                    ;
                0000  000DE          .WORD   0                                       ;
          00000000    000E0          .LONG   0                                       ;
                0000  000E4          .WORD   0                                       ;
                  00  000E6          .BYTE   0                                       ;
                  00  000E7          .BYTE   0                                       ;
                0800  000E8          .WORD   2048                                    ;
                0000  000EA          .WORD   0                                       ;
          00000000    000EC          .LONG   0                                       ;
          00000000    000F0          .LONG   0                                       ;
          00000000    000F4          .LONG   0                                       ;
          00000000    000F8          .LONG   0                                       ;
                  00  000FC          .BYTE   0                                       ;
                  00  000FD          .BYTE   0                                       ;
                  03  000FE          .BYTE   3                                       ;
                  00  000FF          .BYTE   0                                       ;
          00000000    00100          .LONG   0                                       ;
          00000000'   00104          .ADDRESS FAB                                    ;
          00000000    00108          .LONG   0                                       ;
                  02  0010C OUT_NAM_BLK:
                                     .BYTE   2                                       ;
                  60  0010D          .BYTE   96                                      ;
                  FF  0010E          .BYTE   -1                                      ;
                  00  0010F          .BYTE   0                                       ;
          00000000'   00110          .ADDRESS OUT_RES_NAM                            ;
                  00  00114          .BYTE   0                                       ;
                  00  00115          .BYTE   0                                       ;
                  FF  00116          .BYTE   -1                                      ;
                  00  00117          .BYTE   0                                       ;
          00000000'   00118          .ADDRESS OUT_EXP_NAM                            ;
          00000000    0011C          .LONG   0                                       ;
                0000# 00120          .WORD   0[8]                                    ;
                0000# 00130          .WORD   0[3]                                    ;
                0000# 00136          .WORD   0[3]                                    ;
          00000000    0013C          .LONG   0                                       ;
          00000000    00140          .LONG   0                                       ;
                  00  00144          .BYTE   0                                       ;
                  00  00145          .BYTE   0                                       ;
                  00  00146          .BYTE   0                                       ;
                  00  00147          .BYTE   0                                       ;
                  00  00148          .BYTE   0                                       ;
                  00  00149          .BYTE   0                                       ;
                  00# 0014A          .BYTE   0[2]                                    ;
          00000000    0014C          .LONG   0                                       ;
          00000000    00150          .LONG   0                                       ;
          00000000    00154          .LONG   0                                       ;
          00000000    00158          .LONG   0                                       ;
```

```
00000000  0015C          .LONG   0
00000000  00160          .LONG   0
00000000# 00164          .LONG   0[2]
       03 0016C OUTFAB:  .BYTE   3
       50 0016D          .BYTE   80
     0000 0016E          .WORD   0
00000000 00170          .LONG   0
00000000 00174          .LONG   0
00000000 00178          .LONG   0
00000000 0017C          .LONG   0
     0000 00180          .WORD   0
       02 00182          .BYTE   2
       00 00183          .BYTE   0
00000000 00184          .LONG   0
       00 00188          .BYTE   0
       00 00189          .BYTE   0
       02 0018A          .BYTE   2
       02 0018B          .BYTE   2
00000000 0018C          .LONG   0
00000000 00190          .LONG   0
00000000' 00194         .ADDRESS OUT_NAM_BLK
00000000 00198          .LONG   0
00000000' 0019C         .ADDRESS P.AAB
       00 001A0          .BYTE   0
       0A 001A1          .BYTE   10
     0000 001A2          .WORD   0
00000000 001A4          .LONG   0
     0000 001A8          .WORD   0
       00 001AA          .BYTE   0
       00 001AB          .BYTE   0
00000000 001AC          .LONG   0
00000000 001B0          .LONG   0
     0000 001B4          .WORD   0
       00 001B6          .BYTE   0
       00 001B7          .BYTE   0
00000000 001B8          .LONG   0
       01 001BC OUTRAB:  .BYTE   1
       44 001BD          .BYTE   68
     0000 001BE          .WORD   0
00000400 001C0          .LONG   1024
00000000 001C4          .LONG   0
00000000 001C8          .LONG   0
     0000# 001CC        .WORD   0[3]
     0000 001D2          .WORD   0
00000000 001D4          .LONG   0
     0000 001D8          .WORD   0
       00 001DA          .BYTE   0
       00 001DB          .BYTE   0
     0000 001DC          .WORD   0
     0000 001DE          .WORD   0
00000000 001E0          .LONG   0
00000000 001E4          .LONG   0
00000000 001E8          .LONG   0
00000000 001EC          .LONG   0
       00 001F0          .BYTE   0
       00 001F1          .BYTE   0
       00 001F2          .BYTE   0
```

```
                                        00  001F3          .BYTE   0
                                  00000000  001F4          .LONG   0
                                  00000000' 001F8          .ADDRESS OUTFAB
                                  00000000  001FC          .LONG   0
                                  00000008  00200 FORMAT_KEYTBL:
                                                           .LONG   8
                                  00000000' 00204          .ADDRESS P.AAC
                                  00000000  00208          .LONG   0
                                  00000000' 0020C          .ADDRESS P.AAD
                                  00000001  00210          .LONG   1
                                  00000000' 00214          .ADDRESS P.AAE
                                  00000002  00218          .LONG   2
                                  00000000' 0021C          .ADDRESS P.AAF
                                  00000003  00220          .LONG   3
                                  00000008  00224 MATCH_KEYTBL:
                                                           .LONG   8
                                  00000000' 00228          .ADDRESS P.AAG
                                  00000000  0022C          .LONG   0
                                  00000000' 00230          .ADDRESS P.AAH
                                  00000001  00234          .LONG   1
                                  00000000' 00238          .ADDRESS P.AAI
                                  00000002  0023C          .LONG   2
                                  00000000' 00240          .ADDRESS P.AAJ
                                  00000003  00244          .LONG   3
                                  040C0004  00248 STAT_JPI_BLOCK:
                                                           .LONG   67895300
                                  00000000' 0024C          .ADDRESS STAT_JPI_BUFIO
                        04070004  00000000  00250          .LONG   0, 67567620
                                  00000000' 00258          .ADDRESS STAT_JPI_CPUTIM
                        040B0004  00000000  0025C          .LONG   0, 67829764
                                  00000000' 00264          .ADDRESS STAT_JPI_DIRIO
                        040A0004  00000000  00268          .LONG   0, 67764228
                                  00000000' 00270          .ADDRESS STAT_JPI_PAGEFLTS
                        00000000  00000000  00274          .LONG   0, 0

                                                           .PSECT  $OWN$_DZRO,NOEXE,2

                                  00000 EXP_NAME:
                                                           .BLKB   255
                                  000FF                    .BLKB   1
                                  00100 RES_NAME:
                                                           .BLKB   255
                                  001FF                    .BLKB   1
                                  00200 OUT_EXP_NAM:
                                                           .BLKB   255
                                  002FF                    .BLKB   1
                                  00300 OUT_RES_NAM:
                                                           .BLKB   255
                                  003FF                    .BLKB   1
                                  00400 WDW_PRE_RECS:
                                                           .BLKB   4
                                  00404 WDW_SUB_RECS:
                                                           .BLKB   4
                                  00408 WDW_PRE_CNTR:
                                                           .BLKB   4
                                  0040C WDW_SUB_CNTR:
                                                           .BLKB   4
```

```
00410 WDW_PRE_BUFF:
                .BLKB   4
00414 CNT_INFILE:
                .BLKB   4
00418 CNT_SRHSTR:
                .BLKB   4
0041C CNT_EXCLUDE:
                .BLKB   4
00420 MAX_REC:  .BLKB   4
00424 FORMAT:   .BLKB   4
00428 FIL_TOTMAT:
                .BLKB   4
0042C FIL_LINENUM:
                .BLKB   4
00430 OUT_FILE_OPEN:
                .BLKB   1
00431 OUT_PRINTING:
                .BLKB   1
00432 WDW_PREVIOUS:
                .BLKB   1
00433 WDW_ZERO:
                .BLKB   1
00434 WDW_FRAME:
                .BLKB   1
00435 WDW_OVFL:
                .BLKB   1
00436 QUA_EXACT:
                .BLKB   1
00437 QUA_LOG:  .BLKB   1
00438 QUA_NUMBERS:
                .BLKB   1
00439 QUA_HEADING:
                .BLKB   1
0043A NEW_FILE:
                .BLKB   1
0043B FOUND_FILE:
                .BLKB   1
0043C FOUND_ANY:
                .BLKB   1
0043D FIL_FOUND:
                .BLKB   1
0043E MAT_AND:  .BLKB   1
0043F MAT_NEGATE:
                .BLKB   1
00440 RFA_VEC:  .BLKB   4
00444 OUTPUT_BUFF:
                .BLKB   4
00448 INFILE_DESC:
                .BLKB   1088
00888 SRHSTR_DESC:
                .BLKB   1088
00CC8 EXCLUDE_DESC:
                .BLKB   1088
01108 QUA_STATISTICS:
                .BLKB   4
0110C STAT_TOTCHR:
                .BLKB   4
```

```
                        01110 STAT_TOTREC:
                                .BLKB   4
                        01114 STAT_TOTFIL:
                                .BLKB   4
                        01118 STAT_TOTMAT:
                                .BLKB   4
                        0111C STAT_TOTPUT:
                                .BLKB   4
                        01120 STAT_JPI_BUFIO:
                                .BLKB   4
                        01124 STAT_JPI_CPUTIM:
                                .BLKB   4
                        01128 STAT_JPI_DIRIO:
                                .BLKB   4
                        0112C STAT_JPI_PAGEFLTS:
                                .BLKB   4
                        01130 STAT_BUFIO:
                                .BLKB   4
                        01134 STAT_CPUTIM:
                                .BLKB   4
                        01138 STAT_DIRIO:
                                .BLKB   4
                        0113C STAT_PAGEFLTS:
                                .BLKB   4
                        01140 STAT_STARTTIME:
                                .BLKB   8

                                .PSECT  $PLIT$,NOWRT,NOEXE,2

                                                2A  2E  2A  00000 P.AAA:  .ASCII  \*.*\
                                            53  49  4C  2E  48  43  52  41  45  53  00003 P.AAB:  .ASCII  \SEARCH.LIS\
                                                        54  58  45  54  04  0000D P.AAC:  .ASCII  <4>\TEXT\
                                                4C  4C  41  53  53  41  50  07  00012 P.AAD:  .ASCII  <7>\PASSALL\
                                                        50  4D  55  44  04  0001A P.AAE:  .ASCII  <4>\DUMP\
                                                53  4C  4C  55  4E  4F  4E  07  0001F P.AAF:  .ASCII  <7>\NONULLS\
                                                                    52  4F  02  00027 P.AAG:  .ASCII  <2>\OR\
                                                                52  4F  4E  03  0002A P.AAH:  .ASCII  <3>\NOR\
                                                                44  4E  41  03  0002E P.AAI:  .ASCII  <3>\AND\
                                                            44  4E  41  4E  04  00032 P.AAJ:  .ASCII  <4>\NAND\
2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  00037 P.AAK:  .ASCII  \******************************\
2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  2A  00046
                                                                00055          .BLKB   3
                                                                00058 P.AAM:   .BLKB   0
                                                        010E0000  00058 P.AAL:  .LONG   17694720
                                                        00000000' 0005C        .ADDRESS P.AAM
                                            00  00  57  4F  44  4E  49  57  00060 P.AAO:  .ASCII  \WINDOW\<0><0>
                                                        010E0006  00068 P.AAN:  .LONG   17694726
                                                        00000000' 0006C        .ADDRESS P.AAO
                                            00  00  47  4E  49  52  54  53  00070 P.AAQ:  .ASCII  \STRING\<0><0>
                                                        010E0006  00078 P.AAP:  .LONG   17694726
                                                        00000000' 0007C        .ADDRESS P.AAQ
                                            00  00  45  43  52  55  4F  53  00080 P.AAS:  .ASCII  \SOURCE\<0><0>
                                                        010E0006  00088 P.AAR:  .LONG   17694726
                                                        00000000' 0008C        .ADDRESS P.AAS
                        00  00  53  43  49  54  53  49  54  41  54  53  00090 P.AAU:  .ASCII  \STATISTICS\<0><0>
                                                        010E000A  0009C P.AAT:  .LONG   17694730
                                                        00000000' 000A0        .ADDRESS P.AAU
```

```
                                00 00 00 54 43 41 58 45  000A4 P.AAW:   .ASCII  \EXACT\<0><0><0>
                                   010E0005              000AC P.AAV:   .LONG   17694725
                                   00000000'             000B0          .ADDRESS P.AAW
                                            00 47 4F 4C  000B4 P.AAY:   .ASCII  \LOG\<0>
                                   010E0003              000B8 P.AAX:   .LONG   17694723
                                   00000000'             000BC          .ADDRESS P.AAY
                                00 53 52 45 42 4D 55 4E  000C0 P.ABA:   .ASCII  \NUMBERS\<0>
                                   010E0007              000C8 P.AAZ:   .LONG   17694727
                                   00000000'             000CC          .ADDRESS P.ABA
                                00 47 4E 49 44 41 45 48  000D0 P.ABC:   .ASCII  \HEADING\<0>
                                   010E0007              000D8 P.ABB:   .LONG   17694727
                                   00000000'             000DC          .ADDRESS P.ABC
                00 00 00 47 4E 49 4E 49 41 4D 45 52      000E0 P.ABE:   .ASCII  \REMAINING\<0><0><0>
                                   010E0009              000EC P.ABD:   .LONG   17694729
                                   00000000'             000F0          .ADDRESS P.ABE
                                00 00 54 55 50 54 55 4F  000F4 P.ABG:   .ASCII  \OUTPUT\<0><0>
                                   010E0006              000FC P.ABF:   .LONG   17694726
                                   00000000'             00100          .ADDRESS P.ABG
                                00 00 00 48 43 54 41 4D  00104 P.ABI:   .ASCII  \MATCH\<0><0><0>
                                   010E0005              0010C P.ABH:   .LONG   17694725
                                   00000000'             00110          .ADDRESS P.ABI
                                00 00 54 41 4D 52 4F 46  00114 P.ABK:   .ASCII  \FORMAT\<0><0>
                                   010E0006              0011C P.ABJ:   .LONG   17694726
                                   00000000'             00120          .ADDRESS P.ABK
                                00 45 44 55 4C 43 58 45  00124 P.ABM:   .ASCII  \EXCLUDE\<0>
                                   010E0007              0012C P.ABL:   .LONG   17694727
                                   00000000'             00130          .ADDRESS P.ABM
3A 64 65 68 63 72 61 65 73 20 73 65 6C 69 46            00134 P.ABO:   .ASCII  \files searched:        !10UL        Buffe\
20 20 4C 55 30 31 21 20 20 20 20 20 20 20 20            00143
                  65 66 66 75 42 20 20 20 20 20 20      00152
21 3A 74 6E 75 6F 63 20 4F 2F 49 20 64 65 72            0015C          .ASCII  \red I/O count:!10UL\<0>
                              00 4C 55 30 31            00168
                                   010E003B              00170 P.ABN:   .LONG   17694779
                                   00000000'             00174          .ADDRESS P.ABO
65 68 63 72 61 65 73 20 73 64 72 6F 63 65 52            00178 P.ABQ:   .ASCII  \Records searched:      !10UL        Direc\
20 20 4C 55 30 31 21 20 20 20 20 20 3A 64 20            00187
                  63 65 72 69 44 20 20 20 20 20 20      00196
21 20 20 3A 74 6E 75 6F 63 20 4F 2F 49 20 74            001A0          .ASCII  \t I/O count:  !10UL\<0>
                              00 4C 55 30 31            001AF
                                   010E003B              001B4 P.ABP:   .LONG   17694779
                                   00000000'             001B8          .ADDRESS P.ABQ
72 61 65 73 20 73 72 65 74 63 61 72 61 68 43            001BC P.ABS:   .ASCII  \Characters searched:   !10UL        Page \
20 20 4C 55 30 31 21 20 20 20 3A 64 65 68 63            001CB
                  20 65 67 61 50 20 20 20 20 20 20      001DA
21 20 20 20 20 20 20 20 3A 73 74 6C 75 61 66            001E4          .ASCII  \faults:       !10UL\<0>
                              00 4C 55 30 31            001F3
                                   010E003B              001F8 P.ABR:   .LONG   17694779
                                   00000000'             001FC          .ADDRESS P.ABS
64 65 68 63 74 61 6D 20 73 64 72 6F 63 65 52            00200 P.ABU:   .ASCII  \Records matched:       !10UL        Elaps\
20 20 4C 55 30 31 21 20 20 20 20 20 20 3A 20            0020F
                  73 70 61 6C 45 20 20 20 20 20 20      0021E
55 33 21 3A 65 6D 69 74 20 55 50 43 20 64 65            00228          .ASCII  \ed CPU time:!3UL !2ZL:!2ZL:!2ZL.!2ZL\
5A 32 21 3A 4C 5A 32 21 3A 4C 5A 32 21 20 4C            00237
                              4C 5A 32 21 2E 4C         00246
                                   010E004C              0024C P.ABT:   .LONG   17694796
                                   00000000'             00250          .ADDRESS P.ABU
20 3A 64 65 74 6E 69 72 70 20 73 65 6E 69 4C            00254 P.ABW:   .ASCII  \Lines printed:         !10UL        Elaps\
```

```
20 20 4C 55 30 31 21 20 20 20 20 20 20 20 20 20  00263
                73 70 61 6C 45 20 20 20 20 20 20 20  00272
00 53 41 21 20 20 20 3A 65 6D 69 74 20 64 65 20  0027C          .ASCII  \ed time:    !AS\<0><0>
                                                 00  0028B
                                        010E0036  0028C P.ABV:  .LONG   17694774
                                        00000000'  00290        .ADDRESS P.ABW

                                                        STARS_30=           P.AAK
                                                        NULL_STR=           P.AAL
                                                        WINDOW_STR=         P.AAN
                                                        STRING_STR=         P.AAP
                                                        SOURCE_STR=         P.AAR
                                                                .EXTRN  LIB$FILE_SCAN, LIB$LOOKUP_KEY
                                                                .EXTRN  LIB$PUT_OUTPUT, CLI$GET_VALUE
                                                                .EXTRN  CLI$PRESENT, OTS$CVT_TI_L
                                                                .EXTRN  STR$GET1_DX, STR$COPY_DX
                                                                .EXTRN  LIB$GET_VM, SRH$_BADEXCL
                                                                .EXTRN  SRH$_BADEXCLNAM
                                                                .EXTRN  SRH$_BADFORM, SRH$_BADMATCH
                                                                .EXTRN  SRH$_MATCHED, SRH$_NOMATCH
                                                                .EXTRN  SRH$_NOFILE, SRH$_NOMATCHES
                                                                .EXTRN  SRH$_NOSTRING, SRH$_NULLFILE
                                                                .EXTRN  SRH$_RFAERR, SRH$_TRUNCATE
                                                                .EXTRN  SRH$_WDW_MAXPREV
                                                                .EXTRN  SRH$_WDW_MAXPRM
                                                                .EXTRN  SYS$GETJPI, SYS$GETTIM
                                                                .EXTRN  SYS$CREATE, SYS$CONNECT
                                                                .EXTRN  SYS$TRNLOG, SYS$FAO
                                                                .EXTRN  SYS$ASCTIM, SYS$CLOSE

                                                                .PSECT  $CODE$,NOWRT,2

                                                    0FFC 00000 MAIN:    .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10,R11          ; 0434
                                                5B 00000000G   00   9E 00002         MOVAB   CLI$GET_VALUE, R11
                                                5A     0000'   CF   9E 00009         MOVAB   WINDOW_STR, R10
                                                59     0000'   CF   9E 0000E         MOVAB   TMP_DESC, R9
                                                58     0000'   CF   9E 00013         MOVAB   WDW_PRE_RECS, R8
                                                5E     C6D4    CE   9E 00018         MOVAB   -14636(SP), SP
                                                         34    AA   9F 0001D         PUSHAB  P.AAT                           ; 0486
                                        00000000G   00         01   FB 00020         CALLS   #1, CLI$PRESENT
                                              0D08  C8         50   D0 00027         MOVL    R0, QUA_STATISTICS
                                                    3B         50   E9 0002C         BLBC    R0, 3$
                                                               7E   7C 0002F         CLRQ    -(SP)                           ; 0490
                                                               7E   D4 00031         CLRL    -(SP)
                                                       0238    C9   9F 00033         PUSHAB  STAT_JPI_BLOCK
                                                               7E   7C 00037         CLRQ    -(SP)
                                                               7E   D4 00039         CLRL    -(SP)
                                        00000000G   00         07   FB 0003B         CALLS   #7, SYS$GETJPI
                                                    56         50   D0 00042         MOVL    R0, STATUS
                                                    0E         56   E9 00045         BLBC    STATUS, 1$
                                                       0D40    C8   9F 00048         PUSHAB  STAT_STARTTIME                  ; 0493
                                        00000000G   00         01   FB 0004C         CALLS   #1, SYS$GETTIM
                                                    56         50   D0 00053         MOVL    R0, STATUS
                                                    03         56   E8 00056 1$:     BLBS    STATUS, 2$
                                                         05FD  31   00059         BRW     5$
                                              0D30  C8   0D20  C8   7D 0005C 2$:     MOVQ    STAT_JPI_BUFIO, STAT_BUFIO      ; 0497
                                              0D38  C8   0D28  C8   7D 00063         MOVQ    STAT_JPI_DIRIO, STAT_DIRIO      ; 0499
```

```
                00DC  C9    0124  CE  9E 0006A 3$:    MOVAB   INP_BUFFER, RAB+36                  ;0507
                  44  A8    0924  CE  9E 00071        MOVAB   OUT_BUFFER, OUTPUT_BUFF            ;0508
                        44  AA  9F 00077              PUSHAB  P.AAV                              ;0513
                00000000G 00      01  FB 0007A        CALLS   #1, CLI$PRESENT
                  36  A8          50  90 00081        MOVB    R0, QUA_EXACT
                        50  AA  9F 00085              PUSHAB  P.AAX                              ;0514
                00000000G 00      01  FB 00088        CALLS   #1, CLI$PRESENT
                  37  A8          50  90 0008F        MOVB    R0, QUA_LOG
                        60  AA  9F 00093              PUSHAB  P.AAZ                              ;0515
                00000000G 00      01  FB 00096        CALLS   #1, CLI$PRESENT
                  38  A8          50  90 0009D        MOVB    R0, QUA_NUMBERS
                        70  AA  9F 000A1              PUSHAB  P.ABB                              ;0516
                00000000G 00      01  FB 000A4        CALLS   #1, CLI$PRESENT
                  39  A8          50  90 000AB        MOVB    R0, QUA_HEADING
                        F8  A9  9F 000AF              PUSHAB  MOD_DESC                           ;0521
                            5A  DD 000B2              PUSHL   R10
                      6B        02  FB 000B4         CALLS   #2, CLI$GET_VALUE
                      53        50  D0 000B7         MOVL    R0, WDW_1
                      15        53  E9 000BA         BLBC    WDW_1, 4$
                        04  AE  9F 000BD              PUSHAB  WINDOW_1                           ;0524
                        F8  A9  9F 000C0              PUSHAB  MOD_DESC
                00000000G 00      02  FB 000C3        CALLS   #2, OTS$CVT_TI_L
                      28          50  E9 000CA         BLBC    R0, 5$
                        04  AE  D5 000CD              TSTL    WINDOW_1                           ;0530
                            23  19 000D0              BLSS    5$
                        F8  A9  9F 000D2 4$:          PUSHAB  MOD_DESC                           ;0540
                            5A  DD 000D5              PUSHL   R10
                      6B        02  FB 000D7         CALLS   #2, CLI$GET_VALUE
                      52        50  D0 000DA         MOVL    R0, WDW_2
                      2F        52  E9 000DD         BLBC    WDW_2, 6$
                        08  AE  9F 000E0              PUSHAB  WINDOW_2                           ;0543
                        F8  A9  9F 000E3              PUSHAB  MOD_DESC
                00000000G 00      02  FB 000E6        CALLS   #2, OTS$CVT_TI_L
                      05          50  E9 000ED         BLBC    R0, 5$
                        08  AE  D5 000F0              TSTL    WINDOW_2                           ;0549
                            1A  18 000F3              BGEQ    6$
                        F8  A9  9F 000F5 5$:          PUSHAB  MOD_DESC                           ;0552
                            01  DD 000F8              PUSHL   #1
                    00D71112    8F  DD 000FA          PUSHL   #14094610
                00000000G 00      03  FB 00100        CALLS   #3, LIB$SIGNAL
                      50 10D71112 8F  D0 00107         MOVL    #282530066, R0                     ;0553
                                  04  00010E          RET
                        F8  A9  9F 0010F 6$:          PUSHAB  MOD_DESC                           ;0557
                            5A  DD 00112              PUSHL   R10
                      6B        02  FB 00114         CALLS   #2, CLI$GET_VALUE
                      08        50  E9 00117         BLBC    R0, 7$
                      50 00000000G  8F  D0 0011A     MOVL    #SRH$_WDW_MAXPRM, R0               ;0559
                                  04  00121          RET
                      22        53  E9 00122 7$:     BLBC    WDW_1, 10$                         ;0564
                      06        52  E9 00125         BLBC    WDW_2, 8$                          ;0567
                      68  04    AE  7D 00128         MOVQ    WINDOW_1, WDW_PRE_RECS             ;0570
                                19  11 0012C         BRB     10$                                ;0567
                        04  AE  D5 0012E 8$:          TSTL    WINDOW_1                           ;0575
                                06  12 00131         BNEQ    9$
                    33  A8          01  90 00133     MOVB    #1, WDW_ZERO                       ;0577
                                0E  11 00137         BRB     10$
                50  04  AE          01  C3 00139 9$:  SUBL3   #1, WINDOW_1, TMP                  ;0582
```

```
            68          50         02  C7 0013E          DIVL3   #2, TMP, WDW_PRE_RECS                         : 0583
     04     A8          50         68  C3 00142          SUBL3   WDW_PRE_RECS, TMP, WDW_SUB_RECS               : 0584
                                   68  D5 00147  10$:    TSTL    WDW_PRE_RECS                                  : 0589
                                   05  14 00149          BGTR    11$                                           :
                              04   A8  D5 0014B          TSTL    WDW_SUB_RECS                                  : 0590
                                   04  15 0014E          BLEQ    12$                                           :
                 34     A8         01  90 00150  11$:    MOVB    #1, WDW_FRAME                                 : 0592
                            0084   CA  9F 00154  12$:    PUSHAB  P.ABD                                         : 0594
          00000000G     00         01  FB 00158          CALLS   #1, CLI$PRESENT                               :
                        04         50  E9 0015F          BLBC    R0, 13$                                       :
                 04     A8         01  CE 00162          MNEGL   #1, WDW_SUB_RECS                              : 0596
                              F8   A9  9F 00166  13$:    PUSHAB  MOD_DESC                                      : 0601
                            0094   CA  9F 00169          PUSHAB  P.ABF                                         :
                        6B         02  FB 0016D          CALLS   #2, CLI$GET_VALUE                             :
                 30     A8         50  90 00170          MOVB    R0, OUT_FILE_OPEN                             :
                        5B         50  E9 00174          BLBC    R0, 17$                                       :
               0190     C9    F8   A9  90 00177          MOVB    MOD_DESC, OUTFAB+52                           : 0604
               0188     C9    FC   A9  D0 0017D          MOVL    MOD_DESC+4, OUTFAB+44                         : 0605
                            015C   C9  9F 00183          PUSHAB  OUTFAB                                        : 0606
          00000000G     00         01  FB 00187          CALLS   #1, SYS$CREATE                                :
                        56         50  D0 0018E          MOVL    R0, STATUS                                    :
                        06         56  E8 00191          BLBS    STATUS, 14$                                   :
                            0168   C9  DD 00194          PUSHL   OUTFAB+12                                     : 0608
                                   15  11 00198          BRB     15$                                           :
                            01AC   C9  9F 0019A  14$:    PUSHAB  OUTRAB                                        : 0609
          00000000G     00         01  FB 0019E          CALLS   #1, SYS$CONNECT                               :
                        56         50  D0 001A5          MOVL    R0, STATUS                                    :
                        16         56  E8 001A8          BLBS    STATUS, 16$                                   :
                            01B8   C9  DD 001AB          PUSHL   OUTRAB+12                                     : 0611
                            015C   C9  9F 001AF  15$:    PUSHAB  OUTFAB                                        :
                                   56  DD 001B3          PUSHL   STATUS                                        :
                        00D710A2   8F  DD 001B5          PUSHL   #14094498                                     :
              0000V     CF         04  FB 001BB          CALLS   #4, FILE_ERROR                                :
                                       04 001C0          RET                                                   :
                 20     A8  0192   C9  3C 001C1  16$:    MOVZWL  OUTFAB+54, MAX_REC                            : 0612
                              20   A8  D5 001C7          TSTL    MAX_REC                                       : 0613
                                   06  12 001CA          BNEQ    17$                                           :
                 20     A8  FFFF   8F  3C 001CC          MOVZWL  #65535, MAX_REC                               :
     31     A8   30     A8    33   A8  8B 001D2  17$:    BICB3   WDW_ZERO, OUT_FILE_OPEN, OUT_PRINTING         : 0616
                              F0   A9  9F 001D9          PUSHAB  STRING_DESC                                   : 0621
                            00A4   CA  9F 001DC          PUSHAB  P.ABH                                         :
                        6B         02  FB 001E0          CALLS   #2, CLI$GET_VALUE                             :
                        53    F4   A9  D0 001E3          MOVL    STRING_DESC+4, R3                             : 0622
                        52    F4   A9  D0 001E7          MOVL    STRING_DESC+4, R2                             :
                        51    F0   A9  3C 001EB          MOVZWL  STRING_DESC, R1                               :
                             0000V     30 001EF          BSBW    UPCASE                                        :
                              0C   AE  9F 001F2          PUSHAB  KEYVAL                                        : 0624
                            0214   C9  9F 001F5          PUSHAB  MATCH_KEYTBL                                  :
                              F0   A9  9F 001F9          PUSHAB  STRING_DESC                                   :
          00000000G     00         03  FB 001FC          CALLS   #3, LIB$LOOKUP_KEY                            :
                        56         50  D0 00203          MOVL    R0, STATUS                                    :
                        16         56  E8 00206          BLBS    STATUS, 18$                                   :
                              F0   A9  9F 00209          PUSHAB  STRING_DESC                                   : 0626
                                   01  DD 0020C          PUSHL   #1                                            :
                                   56  DD 0020E          PUSHL   STATUS                                        :
                                   7E  D4 00210          CLRL    -(SP)                                         :
                        00000000G  8F  DD 00212          PUSHL   #SRH$_BADMATCH                                :
```

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                00000000G  00        05  FB 00218          CALLS   #5, LIB$STOP
                      03   00     0C  AE  CF 0021F 18$:     CASEL   KEYVAL, #0, #3                          0628
          0010        000A        0014      00224 19$:     .WORD   23$-19$,-
                                                                   22$-19$,-
                                                                   20$-19$,-
                                                                   21$-19$
                                        0E  11 0022C          BRB     23$
                         3E  A8         01  90 0022E 20$:     MOVB    #1, MAT_AND                           0632
                                        08  11 00232          BRB     23$
                         3E  A8         01  90 00234 21$:     MOVB    #1, MAT_AND                           0634
                         3F  A8         01  90 00238 22$:     MOVB    #1, MAT_NEGATE                        0635
                             50         68  D0 0023C 23$:     MOVL    WDW_PRE_RECS, R0                      0643
                                        07  12 0023F          BNEQ    24$
                         6C  A9     40  8F  88 00241          BISB2   #64, FAB+4                            0645
                                        30  11 00246          BRB     25$
                         32  A8         01  90 00248 24$:     MOVB    #1, WDW_PREVIOUS                      0648
                             40     A8  9F  9A 0024C          PUSHAB  RFA_VEC                               0652
                             50         06  C4 0024F          MULL2   #6, R0
                         04  AE     06  A0  9E 00252          MOVAB   6(R0), 4(SP)
                             04     AE  9F  9A 00257          PUSHAB  4(SP)
                00000000G  00         02  FB 0025A          CALLS   #2, LIB$GET_VM
                             56         50  D0 00261          MOVL    R0, STATUS
                             11         56  E8 00264          BLBS    STATUS, 25$
                                        56  DD 00267          PUSHL   STATUS                                0654
                                        7E  D4 00269          CLRL    -(SP)
                                00000000G  8F  DD 0026B          PUSHL   #SRH$_WDW_MAXPREV
                00000000G  00           03  FB 00271          CALLS   #3, LIB$STOP
                                   F0   A9  9F 00278 25$:     PUSHAB  STRING_DESC                           0660
                                  00B4  CA  9F 0027B          PUSHAB  P.ABJ
                             6B         02  FB 0027F          CALLS   #2, CLI$GET_VALUE
                             53    F4   A9  D0 00282          MOVL    STRING_DESC+4, R3                     0661
                             52    F4   A9  D0 00286          MOVL    STRING_DESC+4, R2
                             51    F0   A9  3C 0028A          MOVZWL  STRING_DESC, R1
                                  0000V 30  30 0028E          BSBW    UPCASE
                                   24   A8  9F 00291          PUSHAB  FORMAT                                0663
                                 01F0   C9  9F 00294          PUSHAB  FORMAT_KEYTBL
                                   F0   A9  9F 00298          PUSHAB  STRING_DESC
     00000000G  00                      03  FB 0029B          CALLS   #3, LIB$LOOKUP_KEY
                             56         50  D0 002A2          MOVL    R0, STATUS
                             16         56  E8 002A5          BLBS    STATUS, 26$
                                   F0   A9  9F 002A8          PUSHAB  STRING_DESC                           0665
                                        01  DD 002AB          PUSHL   #1
                                        56  DD 002AD          PUSHL   STATUS
                                        7E  D4 002AF          CLRL    -(SP)
                                00000000G  8F  DD 002B1          PUSHL   #SRH$_BADFORM
     00000000G  00                      05  FB 002B7          CALLS   #5, LIB$STOP
                             50    14   A8  D0 002BE 26$:     MOVL    CNT_INFILE, R0                        0673
     00000088   8F                      50  D1 002C2          CMPL    R0, #136
                                        20  18 002C9          BGEQ    27$
                                   48 A840  7F 002CB          PUSHAQ  INFILE_DESC[R0]                       0676
                             9E 020E0000   8F  D0 002CF          MOVL    #34471936, @(SP)+
                                   48 A840  7F 002D6          PUSHAQ  INFILE_DESC[R0]                       0678
                                   20   AA  9F 002DA          PUSHAB  SOURCE_STR                            0677
                             6B         02  FB 002DD          CALLS   #2, CLI$GET_VALUE                     0678
                             56         50  D0 002E0          MOVL    R0, STATUS
                             05         56  E9 002E3          BLBC    STATUS, 27$
                                   14   A8  D6 002E6          INCL    CNT_INFILE                            0681
```

```
                                    D3  11 002E9          BRB     26$                                     ; 0673
                                14  A8  D5 002EB 27$:     TSTL    CNT_INFILE                              ; 0687
                                    08  14 002EE          BGTR    28$
                            50 00000000G    8F  D0 002F0          MOVL    #SRH$_NOFILE, R0                ; 0689
                                    04 002F7          RET
00000088                    8F      18  A8  D1 002F8 28$:     CMPL    CNT_SRHSTR, #136                ; 0697
                                    5E  18 00300          BGEQ    31$
                                F0  A9  9F 00302          PUSHAB  STRING_DESC                         ; 0700
                                10  AA  9F 00305          PUSHAB  STRING_STR
                            6B          02  FB 00308          CALLS   #2, CLI$GET_VALUE
                            56          50  D0 0030B          MOVL    R0, STATUS
                            4F          56  E9 0030E          BLBC    STATUS, 31$
                            50      18  A8  D0 00311          MOVL    CNT_SRHSTR, R0                  ; 0706
                            50  0488 C840  7E 00315          MOVAQ   SRHSTR_DESC[R0], R0
                            60 020E0000 8F  D0 0031B          MOVL    #34471936, (R0)
                            0E      36  A8  E9 00322          BLBC    QUA_EXACT, 29$                  ; 0708
                                F0  A9  9F 00326          PUSHAB  STRING_DESC                     ; 0710
                                    50  DD 00329          PUSHL   R0
00000000G                   00          02  FB 0032B          CALLS   #2, STR$COPY_DX
                                    27  11 00332          BRB     30$
                                    50  DD 00334 29$:     PUSHL   R0                              ; 0714
                                F0  A9  9F 00336          PUSHAB  STRING_DESC                     ; 0713
00000000G                   00          02  FB 00339          CALLS   #2, STR$GET1_DX             ; 0714
                            50      18  A8  D0 00340          MOVL    CNT_SRHSTR, R0              ; 0718
                                048C C840  7F 00344          PUSHAQ  SRHSTR_DESC+4[R0]           ; 0716
                            53          9E  D0 00349          MOVL    @(SP)+, R3
                            52      F4  A9  D0 0034C          MOVL    STRING_DESC+4, R2
                                0488 C840  7F 00350          PUSHAQ  SRHSTR_DESC[R0]
                            51          9E  3C 00355          MOVZWL  @(SP)+, R1
                                    0000V   30 00358          BSBW    UPCASE
                                    18  A8  D6 0035B 30$:     INCL    CNT_SRHSTR                      ; 0721
                                    98  11 0035E          BRB     28$                             ; 0697
                                    18  A8  D5 00360 31$:     TSTL    CNT_SRHSTR                      ; 0727
                                    08  14 00363          BGTR    32$
                            50 00000000G    8F  D0 00365          MOVL    #SRH$_NOSTRING, R0          ; 0729
                                    04 0036C          RET
                            57      18  AE  9E 0036D 32$:     MOVAB   RESULT_DESC+4, R7               ; 0752
                    00000088    8F      1C  A8  D1 00371 33$:     CMPL    CNT_EXCLUDE, #136           ; 0737
                                    03  19 00379          BLSS    35$
                                00B6    31 0037B 34$:     BRW     43$
                                F0  A9  9F 0037E 35$:     PUSHAB  STRING_DESC                     ; 0745
                                00C4    CA  9F 00381          PUSHAB  P.ABL
                            6B          02  FB 00385          CALLS   #2, CLI$GET_VALUE
                            56          50  D0 00388          MOVL    R0, STATUS
                            ED          56  E9 00388          BLBC    STATUS, 34$
1C  AE          F0  A9              08  28 0038E          MOVC3   #8, STRING_DESC, INTER_DESC     ; 0751
                14  AE              69  D0 00394          MOVL    TMP_DESC, RESULT_DESC           ; 0752
                14  AE          FF  8F  9B 00398 36$:     MOVZBW  #255, RESULT_DESC               ; 0755
                18  AE          24  AE  9E 0039D          MOVAB   BUF, RESULT_DESC+4              ; 0756
                                    7E  7C 003A2          CLRQ    -(SP)                           ; 0757
                                    7E  D4 003A4          CLRL    -(SP)
                                20  AE  9F 003A6          PUSHAB  RESULT_DESC
                                24  AE  9F 003A9          PUSHAB  RESULT_DESC
                                30  AE  9F 003AC          PUSHAB  INTER_DESC
                    00000000G   00          06  FB 003AF          CALLS   #6, SYS$TRNLOG
                            56          50  D0 003B6          MOVL    R0, STATUS
                            09          56  E8 003B9          BLBS    STATUS, 37$                     ; 0758
```

```
                                         56   DD 003BC       PUSHL   STATUS                                  ; 0760
                 00000000G   00          01   FB 003BE       CALLS   #1, LIB$STOP                            ;
    1C    AE        14       AE          08   28 003C5 37$:  MOVC3   #8, RESULT_DESC, INTER_DESC             ; 0761
                 00000629    8F          56   D1 003CB       CMPL    STATUS, #1577                           ; 0763
                                         C4   12 003D2       BNEQ    36$                                     ;
    18    BE        14       AE          3A   3A 003D4       LOCC    #58, RESULT_DESC, @RESULT_DESC+4        ; 0769
                                         02   12 003DA       BNEQ    38$                                     ;
                                         51   D4 003DC       CLRL    R1                                      ;
                                         51   D5 003DE 38$:  TSTL    R1                                      ; 0770
                                         1D   12 003E0       BNEQ    41$                                     ;
    18    BE        14       AE      5D  8F   3A 003E2       LOCC    #93, RESULT_DESC, @RESULT_DESC+4        ; 0771
                                         02   12 003E9       BNEQ    39$                                     ;
                                         51   D4 003EB       CLRL    R1                                      ;
                                         51   D5 003ED 39$:  TSTL    R1                                      ; 0772
                                         0E   12 003EF       BNEQ    41$                                     ;
    18    BE        14       AE          3E   3A 003F1       LOCC    #62, RESULT_DESC, @RESULT_DESC+4        ; 0773
                                         02   12 003F7       BNEQ    40$                                     ;
                                         51   D4 003F9       CLRL    R1                                      ;
                                         51   D5 003FB 40$:  TSTL    R1                                      ; 0774
                                         12   13 003FD       BEQL    42$                                     ;
                                 14      AE   9F 003FF 41$:  PUSHAB  RESULT_DESC                             ; 0776
                                         01   DD 00402       PUSHL   #1                                      ;
                          00000000G      8F   DD 00404       PUSHL   #SRH$_BADEXCL                           ;
                 00000000G   00          03   FB 0040A       CALLS   #3, LIB$STOP                            ;
                             50      1C  A8   D0 00411 42$:  MOVL    CNT_EXCLUDE, R0                         ; 0781
                               08C8    C840   7F 00415       PUSHAQ  EXCLUDE_DESC[R0]                        ;
                          9E 020E0000    8F   D0 0041A       MOVL    #34471936, @(SP)+                       ;
                               08C8    C840   7F 00421       PUSHAQ  EXCLUDE_DESC[R0]                        ; 0782
                                 18      AE   9F 00426       PUSHAB  RESULT_DESC                             ;
                     0000V   CF          02   FB 00429       CALLS   #2, VALIDATE_EXCLUDE_FILE               ;
                                 1C      A8   D6 0042E       INCL    CNT_EXCLUDE                             ; 0783
                               FF3D           31 00431       BRW     33$                                     ; 0737
                                 3B      A8   B4 00434 43$:  CLRW    FOUND_FILE                              ; 0788
                                 10      AE   D4 00437       CLRL    SCAN_CONTEXT                            ; 0790
                             53  14      A8   D0 0043A       MOVL    CNT_INFILE, R3                          ; 0791
                             52          01   CE 0043E       MNEGL   #1, IFX                                 ;
                                         2B   11 00441       BRB     45$                                     ;
                               4C    A842     7F 00443 44$:  PUSHAQ  INFILE_DESC+4[IFX]                      ; 0794
                     0094    C9          9E   D0 00447       MOVL    @(SP)+, FAB+44                          ;
                               48    A842     7F 0044C       PUSHAQ  INFILE_DESC[IFX]                        ; 0795
                     009C    C9          9E   90 00450       MOVB    @(SP)+, FAB+52                          ;
                                 10      AE   9F 00455       PUSHAB  SCAN_CONTEXT                            ; 0796
                              0000V      CF   9F 00458       PUSHAB  SCAN_FAILURE                            ;
                              0000V      CF   9F 0045C       PUSHAB  SCAN_SUCCESS                            ;
                                 68      A9   9F 00460       PUSHAB  FAB                                     ;
                 00000000G   00          04   FB 00463       CALLS   #4, LIB$FILE_SCAN                       ;
                             0098        C9   D4 0046A       CLRL    FAB+48                                  ; 0800
          D1                 52          53   F2 0046E 45$:  AOBLSS  R3, IFX, 44$                            ; 0791
                             03   0D08   C8   E8 00472       BLBS    QUA_STATISTICS, 46$                     ; 0807
                               01AC           31 00477       BRW     52$                                     ;
                                         7E   7C 0047A 46$:  CLRQ    -(SP)                                   ; 0820
                                         7E   D4 0047C       CLRL    -(SP)                                   ;
                             0238        C9   9F 0047E       PUSHAB  STAT_JPI_BLOCK                          ;
                                         7E   7C 00482       CLRQ    -(SP)                                   ;
                                         7E   D4 00484       CLRL    -(SP)                                   ;
                 00000000G   00          07   FB 00486       CALLS   #7, SYS$GETJPI                          ;
                             52          50   D0 0048D       MOVL    R0, STAT                                ;
```

```
                        60             52  E9 00490          BLBC    STAT, 47$                                  ;
              04        A9      00B4   CE  9E 00493          MOVAB   OUT_BUF, TMP_DESC+4                        ; 0824
                                  F0   AA  9F 00499          PUSHAB  NUL[_STR                                   ; 0825
       00000000G        00             01  FB 0049C          CALLS   #1, [IB$PUT_OUTPUT                         ;
                        69        50   8F  9B 004A3          MOVZBW  #80, TMP_DESC                              ; 0827
       7E      0D20     C8      0D30   C8  C3 004A7          SUBL3   STAT_BUFIO, STAT_JPI_BUFIO, -(SP)          ; 0829
                                0D14   C8  DD 004AF          PUSHL   STAT_TOTFIL                                ;
                                       59  DD 004B3          PUSHL   R9                                         ;
                                       59  DD 004B5          PUSHL   R9                                         ;
                                0108   CA  9F 004B7          PUSHAB  P.ABN                                      ;
       00000000G        00             05  FB 004BB          CALLS   #5, SYS$FAO                                ;
                        52             50  D0 004C2          MOVL    R0, STAT                                   ;
                        59             52  E9 004C5          BLBC    STAT, 48$                                  ;
                                       59  DD 004C8          PUSHL   R9                                         ; 0832
       00000000G        00             01  FB 004CA          CALLS   #1, LIB$PUT_OUTPUT                         ;
                        69        50   8F  9B 004D1          MOVZBW  #80, TMP_DESC                              ; 0834
       7E      0D28     C8      0D38   C8  C3 004D5          SUBL3   STAT_DIRIO, STAT_JPI_DIRIO, -(SP)          ; 0836
                                0D10   C8  DD 004DD          PUSHL   STAT_TOTREC                                ;
                                       59  DD 004E1          PUSHL   R9                                         ;
                                       59  DD 004E3          PUSHL   R9                                         ;
                                014C   CA  9F 004E5          PUSHAB  P.ABP                                      ;
       00000000G        00             05  FB 004E9          CALLS   #5, SYS$FAO                                ;
                        52             50  D0 004F0          MOVL    R0, STAT                                   ;
                        2B             52  E9 004F3 47$:     BLBC    STAT, 48$                                  ;
                                       59  DD 004F6          PUSHL   R9                                         ; 0839
       00000000G        00             01  FB 004F8          CALLS   #1, LIB$PUT_OUTPUT                         ;
                        69        50   8F  9B 004FF          MOVZBW  #80, TMP_DESC                              ; 0841
       7E      0D2C     C8      0D3C   C8  C3 00503          SUBL3   STAT_PAGEFLTS, STAT_JPI_PAGEFLTS, -(SP)    ; 0843
                                0D0C   C8  DD 0050B          PUSHL   STAT_TOTCHR                                ;
                                       59  DD 0050F          PUSHL   R9                                         ;
                                       59  DD 00511          PUSHL   R9                                         ;
                                0190   CA  9F 00513          PUSHAB  P.ABR                                      ;
       00000000G        00             05  FB 00517          CALLS   #5, SYS$FAO                                ;
                        52             50  D0 0051E          MOVL    R0, STAT                                   ;
                        77             52  E9 00521 48$:     BLBC    STAT, 49$                                  ;
                                       59  DD 00524          PUSHL   R9                                         ; 0846
       00000000G        00             01  FB 00526          CALLS   #1, LIB$PUT_OUTPUT                         ;
                        69        50   8F  9B 0052D          MOVZBW  #80, TMP_DESC                              ; 0848
          50   0D24     C8      0D34   C8  C3 00531          SUBL3   STAT_CPUTIM, STAT_JPI_CPUTIM, TIM          ; 0849
  7E      00            50             01  7A 00539          EMUL    #1, TIM, #0, -(SP)                         ; 0856
  6E      7E            8E  00000064   8F  7B 0053E          EDIV    #100, (SP)+, -(SP), (SP)                   ;
          51            50  00000064   8F  C7 00547          DIVL3   #100, TIM, R1                              ;
  7E      00            51             01  7A 0054F          EMUL    #1, R1, #0, -(SP)                          ;
  6E      7E            8E             3C  7B 00554          EDIV    #60, (SP)+, -(SP), (SP)                    ;
          51            50  00001770   8F  C7 00559          DIVL3   #6000, TIM, R1                             ;
  7E      00            51             01  7A 00561          EMUL    #1, R1, #0, -(SP)                          ;
  6E      7E            8E             3C  7B 00566          EDIV    #60, (SP)+, -(SP), (SP)                    ;
          51            50  00057E40   8F  C7 0056B          DIVL3   #360000, TIM, R1                           ;
  7E      00            51             01  7A 00573          EMUL    #1, R1, #0, -(SP)                          ;
  6E      7E            8E             18  7B 00578          EDIV    #24, (SP)+, -(SP), (SP)                    ;
          7E            50  0083D600   8F  C7 0057D          DIVL3   #8640000, TIM, -(SP)                       ;
                                0D18   C8  DD 00585          PUSHL   STAT_TOTMAT                                ;
                                       59  DD 00589          PUSHL   R9                                         ;
                                       59  DD 0058B          PUSHL   R9                                         ;
                                01E4   CA  9F 0058D          PUSHAB  P.ABT                                      ;
       00000000G        00             09  FB 00591          CALLS   #9, SYS$FAO                                ;
                        52             50  D0 00598          MOVL    R0, STAT                                   ;
```

```
                        7B              52 E9 0059B 49$:    BLBC    STAT, 50$                                       ;
                                        59 DD 0059E         PUSHL   R9                                              ; 0859
                00000000G   00          01 FB 005A0         CALLS   #1, LIB$PUT_OUTPUT                              ;
                    0104    CE          10 D0 005A7         MOVL    #16, TIM_DESC                                   ; 0860
                    0108    CE  010C    CE 9E 005AC         MOVAB   TIM_BUF, TIM_DESC+4                             ; 0861
                                011C    CE 9F 005B3         PUSHAB  QUADTIME                                        ; 0862
                00000000G   00          01 FB 005B7         CALLS   #1, SYS$GETTIM                                  ;
                            52          50 D0 005BE         MOVL    R0, STAT                                        ;
                            55          52 E9 005C1         BLBC    STAT, 50$                                       ;
011C    CE          0D40    C8  011C    CE C3 005C4         SUBL3   QUADTIME, STAT_STARTTIME, QUADTIME              ; 0865
                            50  0D44    C8 D0 005CE         MOVL    STAT_STARTTIME+4, R0                            ;
                            50  0120    CE D9 005D3         SBWC    QUADTIME, R0                                    ;
                    0120    CE          50 D0 005D8         MOVL    R0, QUADTIME                                    ;
                                        7E D4 005DD         CLRL    -(SP)                                           ; 0866
                                0120    CE 9F 005DF         PUSHAB  QUADTIME                                        ;
                                010C    CE 9F 005E3         PUSHAB  TIM_DESC                                        ;
                                0110    CE 9F 005E7         PUSHAB  TIM_DESC                                        ;
                00000000G   00          04 FB 005EB         CALLS   #4, SYS$ASCTIM                                  ;
                            52          50 D0 005F2         MOVL    R0, STAT                                        ;
                            21          52 E9 005F5         BLBC    STAT, 50$                                       ;
                            69      50  8F 9B 005F8         MOVZBW  #80, TMP_DESC                                   ; 0870
                                0104    CE 9F 005FC         PUSHAB  TIM_DESC                                        ; 0872
                                0D1C    C8 DD 00600         PUSHL   STAT_TOTPUT                                     ;
                                        59 DD 00604         PUSHL   R9                                              ;
                                        59 DD 00606         PUSHL   R9                                              ;
                                0224    CA 9F 00608         PUSHAB  P.ABV                                           ;
                00000000G   00          05 FB 0060C         CALLS   #5, SYS$FAO                                     ;
                            52          50 D0 00613         MOVL    R0, STAT                                        ;
                            04          52 E8 00616         BLBS    STAT, 51$                                       ;
                            50          52 D0 00619 50$:    MOVL    STAT, R0                                        ; 0874
                                        04 0061C            RET                                                     ;
                                        59 DD 0061D 51$:    PUSHL   R9                                              ; 0875
                00000000G   00          01 FB 0061F         CALLS   #1, LIB$PUT_OUTPUT                              ;
                            08      30  A8 E9 00626 52$:    BLBC    OUT_FILE_OPEN, 53$                              ; 0880
                                015C    C9 9F 0062A         PUSHAB  OUTFAB                                          ; 0882
                00000000G   00          01 FB 0062E         CALLS   #1, SYS$CLOSE                                   ;
                            56          01 D0 00635 53$:    MOVL    #1, STATUS                                      ; 0884
                            1D      3C  A8 E8 00638         BLBS    FOUND_ANY, 55$                                  ; 0885
                            12      3B  A8 E9 0063C         BLBC    FOUND_FILE, 54$                                 ; 0887
                            56 00000000G 8F D0 00640        MOVL    #SRH$_NOMATCHES, STATUS                         ; 0889
                                        56 DD 00647         PUSHL   STATUS                                          ;
                00000000G   00          01 FB 00649         CALLS   #1, LIB$SIGNAL                                  ;
                                        07 11 00650         BRB     55$                                             ;
                            56 00000000G 8F D0 00652 54$:   MOVL    #SRH$_NOFILE, STATUS                            ; 0891
                            50          56 D0 00659 55$:    MOVL    STATUS, R0                                      ; 0893
                                        04 0065C            RET                                                     ; 0894

; Routine Size:  1629 bytes,    Routine Base:  $CODE$ + 0000
```

```
;  901          0895  1 ROUTINE scan_success : NOVALUE =
;  902          0896  2 BEGIN
;  903          0897  2
;  904          0898  2 ! Make sure that this file isn't being excluded
;  905          0899  2 !
;  906          0900  2 IF NOT exclude_file()                    ! Check exclude list
;  907          0901  2 THEN
;  908          0902  3     BEGIN
;  909          0903  3     found_file = true;
;  910          0904  3     search_one_file();                   ! Open & search a file
;  911          0905  2     END;
;  912          0906  2
;  913          0907  2 RETURN;
;  914          0908  1 END;


                                        0000 00000 SCAN_SUCCESS:
                                                   .WORD   Save nothing                    ; 0895
                0000V  CF                00  FB 00002       CALLS   #0, EXCLUDE_FILE        ; 0900
                       0A                50  E8 00007       BLBS    R0, 1$                  ;
                0000'  CF                01  90 0000A       MOVB    #1, FOUND_FILE          ; 0903
                0000V  CF                00  FB 0000F       CALLS   #0, SEARCH_ONE_FILE     ; 0904
                                            04 00014 1$:   RET                             ; 0908

; Routine Size:  21 bytes,    Routine Base:  $CODE$ + 065D
```

```
;  916          0909  1 ROUTINE scan_failure : NOVALUE =
;  917          0910  2 BEGIN
;  918          0911  2
;  919          0912  2     file_error (srh$_openin, .fab [fab$l_sts], fab, .fab [fab$l_stv]);
;  920          0913  2
;  921          0914  2 RETURN;
;  922          0915  1 END;


                                        0000 00000 SCAN_FAILURE:
                                                           .WORD   Save nothing                    ; 0909
                                    0000'  CF  DD 00002    PUSHL   FAB+12                          ; 0912
                                    0000'  CF  9F 00006    PUSHAB  FAB                             ;
                                    0000'  CF  DD 0000A    PUSHL   FAB+8                           ;
                                00D71098   8F  DD 0000E    PUSHL   #14094488                       ;
                          0000V  CF            04  FB 00014    CALLS   #4, FILE_ERROR              ;
                                               04 00019    RET                                     ; 0915

; Routine Size:  26 bytes,    Routine Base:  $CODE$ + 0672
```

```
;  924     0916  1 ROUTINE validate_exclude_file ( in_desc  : REF BLOCK [8, BYTE],
;  925     0917  1                                  out_desc : REF BLOCK [8, BYTE]) : NOVALUE =
;  926     0918  1
;  927     0919  1 !++
;  928     0920  1 ! Functional description
;  929     0921  1 !
;  930     0922  1 !       This routine checks to see if string_desc is a valid filename
;  931     0923  1 !
;  932     0924  1 ! Calling sequence
;  933     0925  1 !
;  934     0926  1 !       validate_exclude_file (in_desc, out_desc)
;  935     0927  1 !
;  936     0928  1 ! Input parameters
;  937     0929  1 !
;  938     0930  1 !       in_desc     - Address of any class string descriptor containing a
;  939     0931  1 !                     filename to be validated
;  940     0932  1 !
;  941     0933  1 ! Implicit inputs
;  942     0934  1 !
;  943     0935  1 !       none
;  944     0936  1 !
;  945     0937  1 ! Output parameters
;  946     0938  1 !
;  947     0939  1 !       out_desc - Address of any class descriptor to receive validated name.
;  948     0940  1 !                  This copy will NOT have node, device or directory.  Leading
;  949     0941  1 !                  zeroes will be stripped from version numbers.  If a name
;  950     0942  1 !                  of the form NAME.TYP; or NAME.TYP;0 is given, the version
;  951     0943  1 !                  will also be stripped.
;  952     0944  1 !
;  953     0945  1 ! Implicit outputs
;  954     0946  1 !
;  955     0947  1 !       none
;  956     0948  1 !
;  957     0949  1 ! Routine value
;  958     0950  1 !
;  959     0951  1 !       TRUE    - The filename is valid
;  960     0952  1 !       error   - The filename does not parse without errors, the RMS error
;  961     0953  1 !                 code is returned
;  962     0954  1 !
;  963     0955  1 ! Side effects
;  964     0956  1 !
;  965     0957  1 !       Errors will be signalled
;  966     0958  1 !
;  967     0959  1 !--
;  968     0960  1
;  969     0961  2 BEGIN
;  970     0962  2
;  971     0963  2 OWN_DZRO
;  972     0964  2     val_exp     : VECTOR [nam$c_maxrss, BYTE],  ! Expanded name string
;  973     0965  2     val_res     : VECTOR [nam$c_maxrss, BYTE];  ! Resultant name string
;  974     0966  2
;  975     0967  2 OWN_CRF
;  976   P 0968  2     val_nam     : $NAM (                        ! File name block
;  977   P 0969  2                           RSA = val_res,        !  Result name addr
;  978   P 0970  2                           RSS = nam$c_maxrss,   !  Result name size
;  979   P 0971  2                           ESA = val_exp,        !  Expanded name addr
;  980     0972  2                           ESS = nam$c_maxrss),  !  Expanded name size
```

```
;   981        P 0973  2      val_fab     : $FAB(                          ! Input file FAB
;   982        P 0974  2                          DNA = UPLIT BYTE('*.*'),  !  Default file spec.
;   983        P 0975  2                          DNS = 3,                  !   (DNM doesn't like *'s)
;   984          0976  2                          NAM = val_nam);           !  Name block
;   985          0977  2
;   986          0978  2      LOCAL
;   987          0979  2          lve,                 ! Length from version to end
;   988          0980  2          len,                 ! The current length
;   989          0981  2          adr,                 ! The current start
;   990          0982  2          p,                   ! A pointer into the string
;   991          0983  2          status;
;   992          0984  2
;   993          0985  2      val_fab [fab$l_fna] = .in_desc [dsc$a_pointer]; ! Set name addr
;   994          0986  2      val_fab [fab$b_fns] = .in_desc [dsc$w_length];  ! Set name size
;   995          0987  2
;   996          0988  2      IF NOT (status = $PARSE(FAB = val_fab))         ! Parse the file spec
;   997          0989  2      THEN
;   998          0990  3          BEGIN
;   999          0991  3          file_error (srh$_badexclnam, .status, val_fab, .val_fab [fab$l_stv]);
;  1000          0992  3          RETURN;
;  1001          0993  2          END;
;  1002          0994  2
;  1003          0995  2      status = $SEARCH(FAB = val_fab);                ! Parse the file spec
;  1004          0996  2      IF (NOT .status ) AND (.status NEQ RMS$_FNF)
;  1005          0997  2      THEN
;  1006          0998  3          BEGIN
;  1007          0999  3          file_error (srh$_badexclnam, .status, val_fab, .val_fab [fab$l_stv]);
;  1008          1000  3          RETURN;
;  1009          1001  2          END;
;  1010          1002  2
;  1011          1003  2      len = .val_nam [nam$b_esl];                  ! Get length of expanded string
;  1012          1004  2      adr = .val_nam [nam$l_esa];                  ! Get address of expanded string
;  1013          1005  2      p = locate_filename (.len, .adr);            ! Skip device and directory
;  1014          1006  2      len = .len - (.p - .adr);                    ! Adjust the length
;  1015          1007  2      adr = .p;                                    ! And move the pointer
;  1016          1008  2      p = locate_version (.len, .adr);             ! Find the version number
;  1017          1009  2      lve = .len - (.p - .adr);                    ! Compute remaining length
;  1018          1010  2      WHILE 1                             ! Trim leading zeroes in length
;  1019          1011  2      DO
;  1020          1012  3          BEGIN
;  1021          1013  4          IF (.lve GTR 2) AND (CH$RCHAR(.p+1) EQL '0')
;  1022          1014  3          THEN
;  1023          1015  4              BEGIN
;  1024          1016  4              lve = .lve - 1;          ! Remove one from remaining length
;  1025          1017  4              len = .len - 1;          ! Also trim one from full length
;  1026          1018  4              CH$MOVE(.lve, .p+2, .p+1);       ! Slide it over one byte
;  1027          1019  4              END
;  1028          1020  3          ELSE
;  1029          1021  3              EXITLOOP;
;  1030          1022  2          END;
;  1031          1023  2
;  1032          1024  2      IF   (.lve LEQ 1)
;  1033          1025  2       OR ((.lve EQL 2) AND (CH$RCHAR(.p+1) EQL '0'))
;  1034          1026  2      THEN
;  1035          1027  2          len = .len - .lve;
;  1036          1028  2      tmp_desc [dsc$w_length]  = .len;
;  1037          1029  2      tmp_desc [dsc$a_pointer] = .adr;
```

```
;  1038          1030  2 str$copy_dx (.out_desc, tmp_desc);      ! Copy to the output descriptor
;  1039          1031  2
;  1040          1032  2 RETURN;
;  1041          1033  1 END;


                                        .PSECT  $OWN$_CRF,NOEXE,2

                                02  0027C VAL_NAM:.BYTE   2
                                60  0027D         .BYTE   96
                                FF  0027E         .BYTE   -1
                                00  0027F         .BYTE   0
                        00000000'   00280         .ADDRESS VAL_RES
                                00  00284         .BYTE   0
                                00  00285         .BYTE   0
                                FF  00286         .BYTE   -1
                                00  00287         .BYTE   0
                        00000000'   00288         .ADDRESS VAL_EXP
                        00000000    0028C         .LONG   0
                            0000#   00290         .WORD   0[8]
                            0000#   002A0         .WORD   0[3]
                            0000#   002A6         .WORD   0[3]
                        00000000    002AC         .LONG   0
                        00000000    002B0         .LONG   0
                                00  002B4         .BYTE   0
                                00  002B5         .BYTE   0
                                00  002B6         .BYTE   0
                                00  002B7         .BYTE   0
                                00  002B8         .BYTE   0
                                00  002B9         .BYTE   0
                                00#  002BA         .BYTE   0[2]
                        00000000    002BC         .LONG   0
                        00000000    002C0         .LONG   0
                        00000000    002C4         .LONG   0
                        00000000    002C8         .LONG   0
                        00000000    002CC         .LONG   0
                        00000000    002D0         .LONG   0
                        00000000#   002D4         .LONG   0[2]
                                03  002DC VAL_FAB:.BYTE   3
                                50  002DD         .BYTE   80
                            0000    002DE         .WORD   0
                        00000000    002E0         .LONG   0
                        00000000    002E4         .LONG   0
                        00000000    002E8         .LONG   0
                        00000000    002EC         .LONG   0
                            0000    002F0         .WORD   0
                                02  002F2         .BYTE   2
                                00  002F3         .BYTE   0
                        00000000    002F4         .LONG   0
                                00  002F8         .BYTE   0
                                00  002F9         .BYTE   0
                                00  002FA         .BYTE   0
                                02  002FB         .BYTE   2
                        00000000    002FC         .LONG   0
                        00000000    00300         .LONG   0
                        00000000'   00304         .ADDRESS VAL_NAM
```

```
                00000000  00308          .LONG   0                                                       ;
                00000000' 0030C          .ADDRESS P.ABX                                                  ;
                       00 00310          .BYTE   0                                                       ;
                       03 00311          .BYTE   3                                                       ;
                     0000 00312          .WORD   0                                                       ;
                00000000  00314          .LONG   0                                                       ;
                     0000 00318          .WORD   0                                                       ;
                       00 0031A          .BYTE   0                                                       ;
                       00 0031B          .BYTE   0                                                       ;
                00000000  0031C          .LONG   0                                                       ;
                00000000  00320          .LONG   0                                                       ;
                     0000 00324          .WORD   0                                                       ;
                       00 00326          .BYTE   0                                                       ;
                       00 00327          .BYTE   0                                                       ;
                00000000  00328          .LONG   0                                                       ;

                                         .PSECT  $OWN$_DZRO,NOEXE,2

                          01148 VAL_EXP: .BLKB   255
                          01247          .BLKB   1
                          01248 VAL_RES: .BLKB   255

                                         .PSECT  $PLIT$,NOWRT,NOEXE,2

            2A  2E  2A    00294 P.ABX:   .ASCII  \*.*\                                                   ;

                                         .EXTRN  SYS$PARSE, SYS$SEARCH

                                         .PSECT  $CODE$,NOWRT,2

                          07FC 00000 VALIDATE_EXCLUDE_FILE:
                                         .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10                        ; 0916
                       5A      0000'  CF  9E 00002          MOVAB   VAL_FAB, R10
                       50        04   AC  D0 00007          MOVL    IN_DESC, R0                            0985
                    2C AA        04   A0  D0 00008          MOVL    4(R0), VAL_FAB+44
                    34 AA             60  90 00010          MOVB    (R0), VAL_FAB+52                       0986
                                      5A  DD 00014          PUSHL   R10                                    0988
                00000000G  00         01  FB 00016          CALLS   #1, SYS$PARSE
                       52             50  D0 0001D          MOVL    R0, STATUS
                       18             52  E9 00020          BLBC    STATUS, 1$
                                      5A  DD 00023          PUSHL   R10                                    0995
                00000000G  00         01  FB 00025          CALLS   #1, SYS$SEARCH
                       52             50  D0 0002C          MOVL    R0, STATUS
                       1C             52  E8 0002F          BLBS    STATUS, 2$                             0996
                00018292   8F         52  D1 00032          CMPL    STATUS, #98962
                                      13  13 00039          BEQL    2$
                                 0C   AA  DD 0003B 1$:       PUSHL   VAL_FAB+12                             0999
                              0404    8F  BB 0003E          PUSHR   #^M<R2,R10>
                        00000000G     8F  DD 00042          PUSHL   #SRH$_BADEXCLNAM
                     0000V      CF        04  FB 00048          CALLS   #4, FILE_ERROR
                                          04  0004D          RET                                            0998
                       58           AB   AA  9A 0004E 2$:       MOVZBL  VAL_NAM+11, LEN                        1003
                       56           AC   AA  D0 00052          MOVL    VAL_NAM+12, ADR                        1004
                                         56  DD 00056          PUSHL   ADR                                    1005
                                         58  DD 00058          PUSHL   LEN
                     0000V      CF        02  FB 0005A          CALLS   #2, LOCATE_FILENAME
                                57        50  D0 0005F          MOVL    R0, P
```

```
                50              56              57  C3 00062          SUBL3   P, ADR, R0                      ; 1006
                                58              50  C0 00066          ADDL2   R0, LEN
                                56              57  D0 00069          MOVL    P, ADR                          ; 1007
                                                56  DD 0006C          PUSHL   ADR                             ; 1008
                                                58  DD 0006E          PUSHL   LEN
                        0000V   CF              02  FB 00070          CALLS   #2, LOCATE_VERSION
                                57              50  D0 00075          MOVL    R0, P
                50              56              57  C3 00078          SUBL3   P, ADR, R0                      ; 1009
                59              50              58  C1 0007C          ADDL3   LEN, R0, LVE
                                02              59  D1 00080 3$:      CMPL    LVE, #2                         ; 1013
                                                12  15 00083          BLEQ    4$
                                30      01      A7  91 00085          CMPB    1(P), #48
                                                0C  12 00089          BNEQ    4$
                                                59  D7 0008B          DECL    LVE                             ; 1016
                                                58  D7 0008D          DECL    LEN                             ; 1017
        01      A7      02      A7              59  28 0008F          MOVC3   LVE, 2(P), 1(P)                 ; 1018
                                                E9  11 00095          BRB     3$                              ; 1013
                                01              59  D1 00097 4$:      CMPL    LVE, #1                         ; 1024
                                                0B  15 0009A          BLEQ    5$
                                02              59  D1 0009C          CMPL    LVE, #2                         ; 1025
                                                09  12 0009F          BNEQ    6$
                                30      01      A7  91 000A1          CMPB    1(P), #48
                                                03  12 000A5          BNEQ    6$
                                58              59  C2 000A7 5$:      SUBL2   LVE, LEN                        ; 1027
                        FD34    CA              58  B0 000AA 6$:      MOVW    LEN, TMP_DESC                   ; 1028
                        FD38    CA              56  D0 000AF          MOVL    ADR, TMP_DESC+4                 ; 1029
                                        FD34    CA  9F 000B4          PUSHAB  TMP_DESC                        ; 1030
                                          08    AC  DD 000B8          PUSHL   OUT_DESC
                00000000G       00              02  FB 000BB          CALLS   #2, STR$COPY_DX
                                                04  000C2          RET                                     ; 1033

; Routine Size:  195 bytes,    Routine Base:  $CODE$ + 068C
```

```
;  1043     1034  1 ROUTINE exclude_file =                    ! See if the file should be excluded
;  1044     1035  1
;  1045     1036  1 !++
;  1046     1037  1 ! Functional description
;  1047     1038  1 !
;  1048     1039  1 !       This routine checks to see if the current resultant filename in
;  1049     1040  1 !       nam_block matches any of the filenames in the exclude list
;  1050     1041  1 !
;  1051     1042  1 ! Calling sequence
;  1052     1043  1 !
;  1053     1044  1 !       exclude_file()
;  1054     1045  1 !
;  1055     1046  1 ! Input parameters
;  1056     1047  1 !
;  1057     1048  1 !       none
;  1058     1049  1 !
;  1059     1050  1 ! Implicit inputs
;  1060     1051  1 !
;  1061     1052  1 !       nam_block       - The NAMe block containing the resultant string
;  1062     1053  1 !       exclude_desc    - Array of filenames to exclude
;  1063     1054  1 !       cnt_exclude     - Count of items in use in the array
;  1064     1055  1 !
;  1065     1056  1 ! Output parameters
;  1066     1057  1 !
;  1067     1058  1 !       none
;  1068     1059  1 !
;  1069     1060  1 ! Implicit outputs
;  1070     1061  1 !
;  1071     1062  1 !       none
;  1072     1063  1 !
;  1073     1064  1 ! Routine value
;  1074     1065  1 !
;  1075     1066  1 !       TRUE    - The filename matches an item in the exclude list
;  1076     1067  1 !       FALSE   - The filename does not match any item
;  1077     1068  1 !
;  1078     1069  1 ! Side effects
;  1079     1070  1 !
;  1080     1071  1 !       none
;  1081     1072  1 !
;  1082     1073  1 !--
;  1083     1074  1
;  1084     1075  2 BEGIN
;  1085     1076  2
;  1086     1077  2 LOCAL
;  1087     1078  2     p,                  ! A local character pointer
;  1088     1079  2     lenf,               ! Length of file name from nam_block
;  1089     1080  2     adrf,               ! Address of     ''
;  1090     1081  2     lent,               ! Length of target name from exclude list
;  1091     1082  2     adrt;               ! Address of     ''
;  1092     1083  2
;  1093     1084  2 IF .cnt_exclude EQL 0 THEN RETURN false;! Don't bother doing anything more
;  1094     1085  2
;  1095     1086  2 !
;  1096     1087  2 ! Remove device and directory from the result name
;  1097     1088  2 !
;  1098     1089  2 lenf = .nam_block [nam$b_rsl];          ! Get the res length
;  1099     1090  2 adrf = .nam_block [nam$l_rsa];          ! Get the result address
```

```
;  1100          1091  2
;  1101          1092  2 p = locate_filename (.lenf, .adrf);      ! Look for end of directory
;  1102          1093  2 lenf = .lenf - (.p - .adrf);            ! Adjust the length
;  1103          1094  2 adrf = .p;                               ! Adjust the pointer
;  1104          1095  2
;  1105          1096  2 !
;  1106          1097  2 ! Now compare the file name against each file in the exclude list
;  1107          1098  2 !
;  1108          1099  2 INCR idx FROM 0 TO .cnt_exclude-1        ! No loop if it equals zero
;  1109          1100  2 DO
;  1110          1101  3     BEGIN
;  1111          1102  3     !
;  1112          1103  3     ! If the version is not explicitly given in the target, then remove
;  1113          1104  3     ! the version from both the input filename and the target
;  1114          1105  3     !
;  1115          1106  3     lent = .exclude_desc [.idx, dsc$w_length];  ! Length of target
;  1116          1107  3     adrt = .exclude_desc [.idx, dsc$a_pointer]; ! Address of target
;  1117          1108  3
;  1118          1109  3     p = locate_version (.lent, .adrt);          ! Look for version in target
;  1119          1110  3     IF .p EQL 0
;  1120          1111  3     THEN                            ! No version in target, strip from filename
;  1121          1112  4         BEGIN
;  1122          1113  4         p = locate_version (.lenf, .adrf);      ! Look for version in filename
;  1123          1114  4         IF .p NEQ 0                             ! If present
;  1124          1115  4         THEN
;  1125          1116  4             lenf = .p - .adrf;                  ! Set length without version
;  1126          1117  4         END;
;  1127          1118  3
;  1128          1119  3     IF match_file (.lenf, .adrf, .lent, .adrt)
;  1129          1120  3     THEN
;  1130          1121  3         RETURN true;                        ! We got a match, exclude this file
;  1131          1122  2     END;
;  1132          1123  2
;  1133          1124  2 RETURN false;                             ! Never matched, include this file
;  1134          1125  2
;  1135          1126  1 END;


                                    01FC 00000 EXCLUDE_FILE:
                                                .WORD   Save R2,R3,R4,R5,R6,R7,R8                ;  1034
                         0000'  CF  D5 00002    TSTL    CNT_EXCLUDE                              ;  1084
                                72  13 00006    BEQL    4$
                      54 0000'  CF  9A 00008    MOVZBL  NAM_BLOCK+3, LENF                        ;  1089
                      52 0000'  CF  D0 0000D    MOVL    NAM_BLOCK+4, ADRF                        ;  1090
                                52  DD 00012    PUSHL   ADRF                                     ;  1092
                                54  DD 00014    PUSHL   LENF
                0000V   CF      02  FB 00016    CALLS   #2, LOCATE_FILENAME
                      55        50  D0 0001B    MOVL    R0, P
                50    52        55  C3 0001E    SUBL3   P, ADRF, R0                              ;  1093
                      54        50  C0 00022    ADDL2   R0, LENF
                      52        55  D0 00025    MOVL    P, ADRF                                  ;  1094
                      58 0000'  CF  D0 00028    MOVL    CNT_EXCLUDE, R8                          ;  1099
                      53        01  CE 0002D    MNEGL   #1, IDX                                  ;  1119
                                44  11 00030    BRB     3$
```

```
                          0000'CF43   7F  00032 1$:     PUSHAQ  EXCLUDE_DESC[IDX]                ; 1106
                    57          9E   3C  00037         MOVZWL  @(SP)+, LENT
                          0000'CF43   7F  0003A         PUSHAQ  EXCLUDE_DESC+4[IDX]             ; 1107
                    56          9E   D0  0003F         MOVL    @(SP)+, ADRT
                                56   DD  00042         PUSHL   ADRT                            ; 1109
                                57   DD  00044         PUSHL   LENT
                0000V   CF          02   FB  00046     CALLS   #2, LOCATE_VERSION
                    55              50   D0  0004B     MOVL    R0, P
                                    12   12  0004E     BNEQ    2$                              ; 1110
                                    52   DD  00050     PUSHL   ADRF                            ; 1113
                                    54   DD  00052     PUSHL   LENF
                0000V   CF          02   FB  00054     CALLS   #2, LOCATE_VERSION
                    55              50   D0  00059     MOVL    R0, P
                                    04   13  0005C     BEQL    2$                              ; 1114
          54        55              52   C3  0005E     SUBL3   ADRF, P, LENF                   ; 1116
                                    56   DD  00062 2$:  PUSHL   ADRT                            ; 1119
                          0084      5F   BB  00064     PUSHR   #^M<R2,R7>
                                    54   DD  00068     PUSHL   LENF
                0000V   CF          04   FB  0006A     CALLS   #4, MATCH_FILE
                    04              50   E9  0006F     BLBC    R0, 3$
                    50              01   D0  00072     MOVL    #1, R0                          ; 1121
                                        04  00075     RET
          B8        53              5B   F2  00076 3$:  AOBLSS  R8, IDX, 1$                   ; 1099
                                    50   D4  0007A 4$:  CLRL    R0                              ; 1126
                                        04  0007C     RET

; Routine Size:  125 bytes,    Routine Base:  $CODE$ + 074F
```

```
;  1137     1127  1 ROUTINE locate_version (len, adr) =     ! Find version in filename
;  1138     1128  1
;  1139     1129  1 !++
;  1140     1130  1 ! Functional description
;  1141     1131  1 !
;  1142     1132  1 !       This routine finds the version number part of a file specification.
;  1143     1133  1 !       Both the standard syntax of NAME.TYP;1 and the alternate syntax of
;  1144     1134  1 !       NAME.TYP.1 are allowed.
;  1145     1135  1 !
;  1146     1136  1 ! Calling sequence
;  1147     1137  1 !
;  1148     1138  1 !       locate_version (.str [dsc$w_length], .str [dsc$a_pointer])
;  1149     1139  1 !
;  1150     1140  1 ! Input parameters
;  1151     1141  1 !
;  1152     1142  1 !       len - Length of filename string
;  1153     1143  1 !       adr - Address of filename string
;  1154     1144  1 !
;  1155     1145  1 ! Output parameters
;  1156     1146  1 !
;  1157     1147  1 !       none
;  1158     1148  1 !
;  1159     1149  1 ! Implicit inputs/outputs
;  1160     1150  1 !
;  1161     1151  1 !       none
;  1162     1152  1 !
;  1163     1153  1 ! Routine value
;  1164     1154  1 !
;  1165     1155  1 !       Address of the character delimiting the version number if found,
;  1166     1156  1 !       otherwise 0
;  1167     1157  1 !--
;  1168     1158  2 BEGIN
;  1169     1159  2
;  1170     1160  2 LOCAL
;  1171     1161  2     l,                          ! Remaining length for alternate syntax
;  1172     1162  2     p;                          ! Local character pointer
;  1173     1163  2
;  1174     1164  2 p = CH$FIND_CH (.len, .adr, ':');       ! Look for version in target
;  1175     1165  2 IF .p EQL 0
;  1176     1166  2 THEN
;  1177     1167  3     BEGIN
;  1178     1168  3     p = CH$FIND_CH (.len, .adr, '.');   ! Check for alternate syntax
;  1179     1169  3     IF .p EQL 0 THEN RETURN false;      ! No version
;  1180     1170  3     p = .p + 1;                         ! Bump past the dot
;  1181     1171  3     l = .len - (.p - .adr);             ! Length of remainder
;  1182     1172  3     IF .l LEQ 0 THEN RETURN false;      ! It was "NAME.", no version
;  1183     1173  3     p = CH$FIND_CH (.l, .p, '.');       ! Look for second dot
;  1184     1174  2     END;
;  1185     1175  2
;  1186     1176  2 RETURN .p;                              ! Done, it is zero or pointer
;  1187     1177  2
;  1188     1178  1 END;
```

```
                                            0000 00000 LOCATE_VERSION:
                                                                 .WORD    Save nothing                      ; 1127
        08   BC        04   AC          3B   3A 00002           LOCC     #59, LEN, @ADR                    ; 1164
                                        02   12 00008           BNEQ     1$
                                        51   D4 0000A           CLRL     R1
                                        51   D5 0000C 1$:       TSTL     P                                 ; 1165
                                        23   12 0000E           BNEQ     3$
        08   BC        04   AC          2E   3A 00010           LOCC     #46, LEN, @ADR                    ; 1168
                                        02   12 00016           BNEQ     2$
                                        51   D4 00018           CLRL     R1
                                        51   D5 0001A 2$:       TSTL     P                                 ; 1169
                                        19   13 0001C           BEQL     4$
                                        51   D6 0001E           INCL     P                                 ; 1170
             50        08   AC          51   C3 00020           SUBL3    P, ADR, R0                        ; 1171
                            50     04   AC   C0 00025           ADDL2    LEN, L
                                        0C   15 00029           BLEQ     4$                                ; 1172
             61             50          2E   3A 0002B           LOCC     #46, L, (P)                       ; 1173
                                        02   12 0002F           BNEQ     3$
                                        51   D4 00031           CLRL     R1
                            50          51   D0 00033 3$:       MOVL     P, R0                             ; 1176
                                             04 00036           RET
                                        50   D4 00037 4$:       CLRL     R0                                ; 1178
                                             04 00039           RET

; Routine Size:  58 bytes,    Routine Base:  $CODE$ + 07CC
```

```
;  1190     1179  1 ROUTINE locate_filename (len, adr) =    ! Find version in filename
;  1191     1180  1
;  1192     1181  1 !++
;  1193     1182  1 ! Functional description
;  1194     1183  1 !
;  1195     1184  1 !       This routine finds the filename part of a file specification.
;  1196     1185  1 !       Node, device and directory are removed from the filespec.
;  1197     1186  1 !       Both the standard syntax of [DIR]NAME.TYP and the alternate
;  1198     1187  1 !       syntax of <DIR>NAME.TYP are allowed.
;  1199     1188  1 !
;  1200     1189  1 ! Calling sequence
;  1201     1190  1 !
;  1202     1191  1 !       locate_filename (.str [dsc$w_length], .str [dsc$a_pointer])
;  1203     1192  1 !
;  1204     1193  1 ! Input parameters
;  1205     1194  1 !
;  1206     1195  1 !       len - Length of filename string
;  1207     1196  1 !       adr - Address of filename string
;  1208     1197  1 !
;  1209     1198  1 ! Output parameters
;  1210     1199  1 !
;  1211     1200  1 !       none
;  1212     1201  1 !
;  1213     1202  1 ! Implicit inputs/outputs
;  1214     1203  1 !
;  1215     1204  1 !       none
;  1216     1205  1 !
;  1217     1206  1 ! Routine value
;  1218     1207  1 !
;  1219     1208  1 !       Address of the first character of the filename.  If no node, device
;  1220     1209  1 !       or directory is present, then .adr will be returned
;  1221     1210  1 !--
;  1222     1211  2 BEGIN
;  1223     1212  2
;  1224     1213  2 LOCAL
;  1225     1214  2     retval,                         ! Address to return
;  1226     1215  2     p;                              ! Local character pointer
;  1227     1216  2
;  1228     1217  2 retval = .adr;                              ! Assume nothing to remove
;  1229     1218  2
;  1230     1219  2 p = CH$FIND_CH (.len, .adr, ']');           ! Look for end of directory
;  1231     1220  2 IF .p NEQ 0
;  1232     1221  2 THEN
;  1233     1222  2     retval = .p + 1                        ! Move the pointer past the ']'
;  1234     1223  2 ELSE
;  1235     1224  3     BEGIN
;  1236     1225  3     p = CH$FIND_CH (.len, .adr, '>'); ! Alternate syntax for directory
;  1237     1226  3     IF .p NEQ 0
;  1238     1227  3     THEN
;  1239     1228  3         retval = .p + 1                    ! Move the pointer past the '>'
;  1240     1229  3     ELSE
;  1241     1230  4         BEGIN
;  1242     1231  4         LOCAL
;  1243     1232  4             l,
;  1244     1233  4             a;
;  1245     1234  4         l = .len;                          ! Get a temporary for the length
;  1246     1235  4         a = .adr;                          !  and the address
```

```
; 1247          1236  4          WHILE 1                          ! Loop and remove colons
; 1248          1237  4          DO
; 1249          1238  5              BEGIN
; 1250          1239  5              p = CH$FIND_CH (.l, .a, ':');
; 1251          1240  5              IF .p EQL 0 THEN EXITLOOP;
; 1252          1241  5              l = .l - (.p - .a + 1);      ! Adjust the length
; 1253          1242  5              a = .p + 1;                  ! Move the pointer past the ':'
; 1254          1243  4              END;
; 1255          1244  4          retval = .a;
; 1256          1245  3          END;
; 1257          1246  2      END;
; 1258          1247  2
; 1259          1248  2  RETURN .retval;                          ! Pass the address back
; 1260          1249  2
; 1261          1250  1  END;


                                          001C 00000 LOCATE_FILENAME:
                                                           .WORD   Save R2,R3,R4                    ; 1179
                          54        08  AC   D0 00002      MOVL    ADR, RETVAL                      ; 1217
          08  BC     04   AC        5D  8F   3A 00006      LOCC    #93, LEN, @ADR                   ; 1219
                                        02   12 0000D      BNEQ    1$                               :
                                        51   D4 0000F      CLRL    R1                               :
                          50            51   D0 00011 1$:  MOVL    R1, P                            :
                                        0F   12 00014      BNEQ    3$                               ; 1220
          08  BC     04   AC            3E   3A 00016      LOCC    #62, LEN, @ADR                   ; 1225
                                        02   12 0001C      BNEQ    2$                               :
                                        51   D4 0001E      CLRL    R1                               :
                          50            51   D0 00020 2$:  MOVL    R1, P                            :
                                        06   13 00023      BEQL    4$                               ; 1226
                          54        01  A0   9E 00025 3$:  MOVAB   1(R0), RETVAL                    ; 1228
                                        26   11 00029      BRB     8$                               :
                          52        04  AC   7D 0002B 4$:  MOVQ    LEN, L                           ; 1234
              63          52            3A   3A 0002F 5$:  LOCC    #58, L, (A)                      ; 1239
                                        02   12 00033      BNEQ    6$                               :
                                        51   D4 00035      CLRL    R1                               :
                          50            51   D0 00037 6$:  MOVL    R1, P                            :
                                        12   13 0003A      BEQL    7$                               ; 1240
              51          50            53   C3 0003C      SUBL3   A, P, R1                         ; 1241
              51          52            51   C3 00040      SUBL3   R1, L, R1                        :
                          52        FF  A1   9E 00044      MOVAB   -1(R1), L                        :
                          53        01  A0   9E 00048      MOVAB   1(R0), A                         ; 1242
                                        E1   11 0004C      BRB     5$                               ; 1236
                          54            53   D0 0004E 7$:  MOVL    A, RETVAL                        ; 1244
                          50            54   D0 00051 8$:  MOVL    RETVAL, R0                       ; 1248
                                             04 00054      RET                                      ; 1250

; Routine Size:  85 bytes,    Routine Base:  $CODE$ + 0806
```

```
;  1263     1251  1 ROUTINE match_file (lenf, adrf, lent, adrt) =   ! Find version in filename
;  1264     1252  1
;  1265     1253  1 !++
;  1266     1254  1 ! Functional description
;  1267     1255  1 !
;  1268     1256  1 !       This routine compares a filename (result string) with a target
;  1269     1257  1 !       filename.  The target filename may contain the wildcard characters
;  1270     1258  1 !       "*" and "%".
;  1271     1259  1 !
;  1272     1260  1 ! Calling sequence
;  1273     1261  1 !
;  1274     1262  1 !       match_file (.lenf, .adrf, .lent, .adrt)
;  1275     1263  1 !
;  1276     1264  1 ! Input parameters
;  1277     1265  1 !
;  1278     1266  1 !       lenf - Length of filename string
;  1279     1267  1 !       adrf - Address of filename string
;  1280     1268  1 !       lent - Length of target filename string
;  1281     1269  1 !       adrt - Address of target filename string
;  1282     1270  1 !
;  1283     1271  1 ! Output parameters
;  1284     1272  1 !
;  1285     1273  1 !       none
;  1286     1274  1 !
;  1287     1275  1 ! Implicit inputs/outputs
;  1288     1276  1 !
;  1289     1277  1 !       none
;  1290     1278  1 !
;  1291     1279  1 ! Routine value
;  1292     1280  1 !
;  1293     1281  1 !       TRUE (1) if the target name includes the filename, FALSE (0)
;  1294     1282  1 !       otherwise
;  1295     1283  1 !--
;  1296     1284  2 BEGIN
;  1297     1285  2
;  1298     1286  2 LOCAL
;  1299     1287  2     cht,                           ! The character from target
;  1300     1288  2     chf;                           ! The character from the filename
;  1301     1289  2
;  1302     1290  2 DECR k FROM .lent-1 TO 0
;  1303     1291  2 DO
;  1304     1292  3     BEGIN
;  1305     1293  3     lent = .lent-1;                        ! Decrement target length
;  1306     1294  3     IF .lent LSS 0 THEN SIGNAL_STOP (SS$_BADPARAM);     ! Temporary check
;  1307     1295  3     cht = CH$RCHAR_A(adrt);                ! Fetch char and bump pointer
;  1308     1296  3
;  1309     1297  3     IF .cht EQL '*'                ! Found a wildcard in target
;  1310     1298  3     THEN
;  1311     1299  4         BEGIN
;  1312     1300  4         IF .lent EQL 0             ! Wildcard at end of target string
;  1313     1301  4         THEN                       !  matches everything, return a
;  1314     1302  4             RETURN true;           !  match
;  1315     1303  4         DECR i FROM .lenf-1 TO 0   ! Look through rest of filename
;  1316     1304  4         DO
;  1317     1305  5             BEGIN
;  1318     1306  5             IF match_file (.lenf, .adrf, .lent, .adrt)  ! Recursively
;  1319     1307  5             THEN                       !  examine rest of filename from this
```

```
5                  RETURN true;     !  point in target, return true if found
5              lenf = .lenf-1;              ! Advance one character in the filename
5              adrf = .adrf+1;              !  and repeat recursive call
4              END;
4          RETURN false;            ! We did not match from wildcard
4          END
3      ELSE                         ! No wildcard in target
4          BEGIN
4          lenf = .lenf-1;                  ! Decrement the input string
4          IF .lenf LSS 0                   ! If we have exhausted the
4          THEN                             !  filename string then we did not
4              RETURN false;                !  match and we can return false
4          chf = CH$RCHAR_A (adrf);         ! Get filename char and bump pointer
5          IF NOT (                 ! If none of the successful tests
6                  (.cht EQL .chf)          ! Did we match?
6                 OR (.cht EQL '%')         ! Single character wildcard
6                 OR ((.chf EQL ';') AND    ! See if the alternate syntax is
6                     (.cht EQL '.')    ) !  in target (assume RMS gives ';')
5                 )
4          THEN                     ! We did not match in any way, therefore
4              RETURN false;        !  we can return false from here.
3          END;
2      END;
2
2 IF .lenf EQL 0 THEN RETURN true;          ! Matched so far, filename exhausted
2
2 RETURN false;                     ! More characters in filename, no match
2
1 END;
```

```
                                      007C 00000 MATCH_FILE:
                                                        .WORD   Save R2,R3,R4,R5,R6          ; 1251
                     55        0C    AC   D0 00002        MOVL    LENT, K                      ; 1290
                                     63   11 00006        BRB     6$                           ;
                               0C    AC   D7 00008 1$:    DECL    LENT                         ; 1293
                     53        0C    AC   D0 0000B        MOVL    LENT, R3                     ; 1294
                                     09   18 0000F        BGEQ    2$                           ;
                                     14   DD 00011        PUSHL   #20                          ;
           00000000G 00              01   FB 00013        CALLS   #1, LIB$STOP                 ;
                     54        10    BC   9A 0001A 2$:    MOVZBL  @ADRT, CHT                   ; 1295
                               10    AC   D6 0001E        INCL    ADRT                         ;
                     2A              54   D1 00021        CMPL    CHT, #42                     ; 1297
                                     25   12 00024        BNEQ    5$                           ;
                                     53   D5 00026        TSTL    R3                           ; 1300
                                     49   13 00028        BEQL    7$                           ;
                     52        04    AC   D0 0002A        MOVL    LENF, I                      ; 1306
                                     16   11 0002E        BRB     4$                           ;
                               10    AC   DD 00030 3$:    PUSHL   ADRT                         ;
                                     53   DD 00033        PUSHL   R3                           ;
                     7E        04    AC   7D 00035        MOVQ    LENF, -(SP)                  ;
                 C3  AF              04   FB 00039        CALLS   #4, MATCH_FILE               ;
                     33              50   E8 0003D        BLBS    R0, 7$                       ;
                               04    AC   D7 00040        DECL    LENF                         ; 1309
```

```
                        08  AC  D6 00043          INCL    ADRF                                    ; 1310
                    E7      52  F4 00046 4$:      SOBGEQ  I, 3$                                   ; 1303
                            2C  11 00049          BRB     8$                                      ; 1312
                        04  AC  D7 0004B 5$:      DECL    LENF                                    ; 1316
                            27  19 0004E          BLSS    8$                                      ; 1317
                    56      08  BC  9A 00050      MOVZBL  @ADRF, CHF                              ; 1320
                        08  AC  D6 00054          INCL    ADRF                                    ;
                    56          54  D1 00057      CMPL    CHT, CHF                                ; 1322
                                0F  13 0005A      BEQL    6$                                      ;
                    25          54  D1 0005C      CMPL    CHT, #37                                ; 1323
                                0A  13 0005F      BEQL    6$                                      ;
                    3B          56  D1 00061      CMPL    CHF, #59                                ; 1324
                                11  12 00064      BNEQ    8$                                      ;
                    2E          54  D1 00066      CMPL    CHT, #46                                ; 1325
                                0C  12 00069      BNEQ    8$                                      ;
                    9A          55  F4 0006B 6$:      SOBGEQ  K, 1$                               ; 1290
                        04      AC  D5 0006E      TSTL    LENF                                    ; 1332
                                04  12 00071      BNEQ    8$                                      ;
                    50          01  D0 00073 7$:      MOVL    #1, R0                              ;
                                    04 00076      RET                                             ;
                                50  D4 00077 8$:      CLRL    R0                                  ; 1336
                                    04 00079      RET                                             ;

; Routine Size:  122 bytes,    Routine Base:  $CODE$ + 085B
```

```
;  1350     1357  1 ROUTINE search_one_file : NOVALUE =     ! Open the file
;  1351     1358  1
;  1352     1359  1 !++
;  1353     1360  1 ! Functional description
;  1354     1361  1 !
;  1355     1362  1 !       This routine opens one file as described by the fab.  Control is then
;  1356     1363  1 !       passed to one of the routines which look for one of the search strings
;  1357     1364  1 !       and output any occurrences.
;  1358     1365  1 !
;  1359     1366  1 ! Calling sequence
;  1360     1367  1 !
;  1361     1368  1 !       search_one_file
;  1362     1369  1 !
;  1363     1370  1 ! Input parameters
;  1364     1371  1 !
;  1365     1372  1 !       none
;  1366     1373  1 !
;  1367     1374  1 ! Implicit inputs
;  1368     1375  1 !
;  1369     1376  1 !       fab             - The FAB  for the file specification
;  1370     1377  1 !       nam             - The related NAMe block
;  1371     1378  1 !       rab             - The RAB for the stream
;  1372     1379  1 !
;  1373     1380  1 ! Output parameters
;  1374     1381  1 !
;  1375     1382  1 !       none
;  1376     1383  1 !
;  1377     1384  1 ! Implicit outputs
;  1378     1385  1 !
;  1379     1386  1 !       none
;  1380     1387  1 !
;  1381     1388  1 ! Routine value
;  1382     1389  1 !
;  1383     1390  1 !       novalue
;  1384     1391  1 !
;  1385     1392  1 ! Side effects
;  1386     1393  1 !
;  1387     1394  1 !       Errors are signaled. Messages are put to SYS$OUTPUT.  Global variables
;  1388     1395  1 !       are updated.
;  1389     1396  1 !
;  1390     1397  1 !--
;  1391     1398  1
;  1392     1399  2 BEGIN
;  1393     1400  2
;  1394     1401  2 LOCAL
;  1395     1402  2     status;
;  1396     1403  2
;  1397     1404  2 IF NOT (status = $OPEN(FAB = fab))               ! Open the file
;  1398     1405  2 THEN
;  1399     1406  3         BEGIN
;  1400     1407  3         file_error (srh$_openin, .status, fab, .fab [fab$l_stv]);       ! Signal the error
;  1401     1408  3         RETURN;                                   ! Exit
;  1402     1409  2         END;
;  1403     1410  2
;  1404     1411  2 IF NOT (status = $CONNECT(RAB = rab))            ! Connect the rab
;  1405     1412  2 THEN
;  1406     1413  3         BEGIN
```

```
;  1407          1394  3          $CLOSE(FAB = fab);                              ! Close the file
;  1408          1395  3          file_error (srh$_openin, .status, fab, .rab [rab$l_stv]);       ! Signal the error
;  1409          1396  3          RETURN                                          ! Exit
;  1410          1397  2          END;
;  1411          1398  2
;  1412          1399  2      wdw_pre_buff = 0;                                   ! Initialize the display window
;  1413          1400  2      wdw_pre_cntr = 0;
;  1414          1401  2      wdw_sub_cntr = 0;
;  1415          1402  2      fil_linenum = 0;
;  1416          1403  2      fil_totmat = 0;
;  1417          1404  2      fil_found = false;
;  1418          1405  2      new_file = true;
;  1419          1406  2
;  1420          1407  2      !
;  1421          1408  2      ! Search the opened file
;  1422          1409  2      !
;  1423          1410  2      std_search_file();
;  1424          1411  2
;  1425        L 1412  2      %IF switch_statistics
;  1426          1413  2      %THEN
;  1427          1414  2          stat_totfil = .stat_totfil+1;       ! Bump the count of files
;  1428          1415  2      %FI
;  1429          1416  2
;  1430          1417  2      IF .qua_log
;  1431          1418  2      THEN
;  1432          1419  3          BEGIN
;  1433          1420  3          tmp_desc [dsc$w_length] = .nam_block [nam$b_rsl];   ! Filename length
;  1434          1421  3          tmp_desc [dsc$a_pointer] = .nam_block [nam$l_rsa];  ! Filename address
;  1435          1422  3          IF .fil_found
;  1436          1423  3          THEN
;  1437          1424  4              BEGIN
;  1438          1425  4              LOCAL
;  1439          1426  4                  m_sp;                                   ! Pointer to plural string
;  1440          1427  4              IF .fil_totmat EQL 1
;  1441          1428  4              THEN
;  1442          1429  4                  m_sp = null_str                         ! No plural
;  1443          1430  4              ELSE
;  1444          1431  4                  m_sp = %ASCID 'es';                     ! For matches.
;  1445          1432  4              SIGNAL (srh$_matched, 4, tmp_desc, .fil_linenum, .fil_totmat, .m_sp);
;  1446          1433  4              END
;  1447          1434  3          ELSE
;  1448          1435  3              SIGNAL (srh$_nomatch, 2, tmp_desc, .fil_linenum);
;  1449          1436  2          END;
;  1450          1437  2
;  1451          1438  2      $close(FAB = fab);                  ! Close the file
;  1452          1439  2
;  1453          1440  1  END;


                                                                .PSECT  $PLIT$,NOWRT,NOEXE,2

                                                    00297       .BLKB   1
                                          00  00  73  65  00298 P.ABZ:  .ASCII  \es\<0><0>                                    ;
                                                010E0002  0029C P.ABY:  .LONG   17694722                                      ;
                                                00000000'  002A0        .ADDRESS P.ABZ                                        ;
```

```
                                        .EXTRN  SYS$OPEN

                                        .PSECT  $CODE$,NOWRT,2

                                007C 00000 SEARCH_ONE_FILE:
                                           .WORD   Save R2,R3,R4,R5,R6                  ; 1337
                    56 00000000G   00   9E 00002           MOVAB   LIB$SIGNAL, R6
                    55 00000000G   00   9E 00009           MOVAB   SYS$CLOSE, R5
                    54      0000'  CF   9E 00010           MOVAB   FIL_TOTMAT, R4
                    53      0000'  CF   9E 00015           MOVAB   FAB, R3
                                   53   DD 0001A           PUSHL   R3                   ; 1384
          00000000G   00           01   FB 0001C           CALLS   #1, SYS$OPEN
                      52           50   D0 00023           MOVL    R0, STATUS
                      05           52   E8 00026           BLBS    STATUS, 1$
                                   0C   A3  DD 00029       PUSHL   FAB+12               ; 1387
                                   18   11  0002C         BRB     2$
                                   50   A3  9F 0002E 1$:    PUSHAB  RAB                  ; 1391
          00000000G   00           01   FB 00031           CALLS   #1, SYS$CONNECT
                      52           50   D0 00038           MOVL    R0, STATUS
                      16           52   E8 0003B           BLBS    STATUS, 3$
                                   53   DD 0003E           PUSHL   R3                   ; 1394
                      65           01   FB 00040           CALLS   #1, SYS$CLOSE
                                   5C   A3  DD 00043       PUSHL   RAB+12               ; 1395
                                   0C   BB  00046 2$:      PUSHR   #^M<R2,R3>
                               00D71098 8F  DD 00048       PUSHL   #14094488
                0000V  CF              04   FB 0004E      CALLS   #4, FILE_ERROR
                                       04   00053          RET                          ; 1393
                                   E0   A4  D4 00054 3$:   CLRL    WDW_PRE_CNTR         ; 1400
                                   E4   A4  7C 00057       CLRQ    WDW_SUB_CNTR         ; 1401
                                   64   7C  0005A          CLRQ    FIL_TOTMAT           ; 1403
                                   15   A4  94 0005C       CLRB    FIL_FOUND            ; 1404
                          12       A4       01   90 0005F MOVB    #1, NEW_FILE         ; 1405
                0000V  CF              00   FB 00063      CALLS   #0, STD_SEARCH_FILE  ; 1410
                                 0CEC  C4   D6 00068      INCL    STAT_TOTFIL          ; 1414
                          47       0F   A4   E9 0006C     BLBC    QUA_LOG, 7$          ; 1417
                          98       A3   A3   A3 98 00070  MOVZBW  NAM_BLOCK+3, TMP_DESC ; 1420
                          9C       A3   A4   A3 D0 00075  MOVL    NAM_BLOCK+4, TMP_DESC+4 ; 1421
                          28       15   A4   E9 0007A     BLBC    FIL_FOUND, 6$        ; 1422
                          01            64   D1 0007E     CMPL    FIL_TOTMAT, #1       ; 1427
                                        07   12 00081     BNEQ    4$
                          50       0000' CF   9E 00083    MOVAB   NULL_STR, M_SP       ; 1429
                                        05   11 00088     BRB     5$
                          50       0000' CF   9E 0008A 4$: MOVAB   P.ABY, M_SP          ; 1431
                                        50   DD 0008F 5$:  PUSHL   M_SP                 ; 1432
                                        64   DD 00091      PUSHL   FIL_TOTMAT
                                   04   A4   DD 00093     PUSHL   FIL_LINENUM
                                   98   A3   9F 00096     PUSHAB  TMP_DESC
                                        04   DD 00099     PUSHL   #4
                               00000000G 8F   DD 0009B     PUSHL   #SRH$_MATCHED
                                   66        06   FB 000A1 CALLS   #6, LIB$SIGNAL
                                        11   11 000A4      BRB     7$                   ; 1422
                                   04   A4   DD 000A6 6$:  PUSHL   FIL_LINENUM         ; 1435
                                   98   A3   9F 000A9     PUSHAB  TMP_DESC
                                        02   DD 000AC     PUSHL   #2
                               00000000G 8F   DD 000AE     PUSHL   #SRH$_NOMATCH
                                   66        04   FB 000B4 CALLS   #4, LIB$SIGNAL
                                        53   DD 000B7 7$:  PUSHL   R3                   ; 1438
```

```
                                65          01  FB 000B9          CALLS   #1, SYS$CLOSE                        ;
                                                04 000BC          RET                                         ; 1440

; Routine Size:  189 bytes,    Routine Base:  $CODE$ + 08D5
```

```
;  1455     1441  1 ROUTINE get_next_record (len, adr)  : JSB_GETNEXREC =
;  1456     1442  2 BEGIN
;  1457     1443  2
;  1458     1444  2 !++
;  1459     1445  2 ! Description:
;  1460     1446  2 !
;  1461     1447  2 !       This routine gets the next record from the current input stream.
;  1462     1448  2 !       It returns the length and address of the record.  The routine
;  1463     1449  2 !       returns "true" if a record is present, "false" if no record is
;  1464     1450  2 !       found.  Calling routines should treat all "false" returns as
;  1465     1451  2 !       End of File.  If an actual error occurs, it will be signaled.
;  1466     1452  2 !--
;  1467     1453  2
;  1468     1454  2 OWN_DZRO
;  1469     1455  2     trunc;
;  1470     1456  2
;  1471     1457  2 LOCAL
;  1472     1458  2     get_recsiz,
;  1473     1459  2     status;
;  1474     1460  2
;  1475     1461  2 IF .new_file
;  1476     1462  2 THEN
;  1477     1463  2     BEGIN
;  1478     1464  2     new_file = false;
;  1479     1465  2     trunc = false;
;  1480     1466  2     END;
;  1481     1467  2
;  1482     1468  2 status = $GET(RAB = rab);                    ! Get a record
;  1483     1469  2 get_recsiz = .rab [rab$w_rsz];               ! Copy length of record
;  1484     1470  2
;  1485     1471  2 IF (.status EQLU rms$_rtb) OR
;  1486     1472  2    (.status AND (.get_recsiz GTRU io_buff_sz))
;  1487     1473  2 THEN
;  1488     1474  3     BEGIN
;  1489     1475  3     get_recsiz = io_buff_sz;
;  1490     1476  3     IF NOT .trunc
;  1491     1477  3     THEN
;  1492     1478  4         BEGIN
;  1493     1479  4         trunc = true;
;  1494     1480  4         tmp_desc [dsc$w_length]  = .nam_block [nam$b_rsl];
;  1495     1481  4         tmp_desc [dsc$a_pointer] = .nam_block [nam$l_rsa];
;  1496     1482  4         SIGNAL (srh$_truncate,2,tmp_desc,io_buff_sz);
;  1497     1483  4         END;
;  1498     1484  3     END
;  1499     1485  2 ELSE
;  1500     1486  3     IF NOT .status                                ! If error
;  1501     1487  3     THEN
;  1502     1488  4         BEGIN
;  1503     1489  4         IF .status NEQ RMS$_EOF          ! If not end-of-file
;  1504     1490  4         THEN
;  1505     1491  4             file_error (srh$_readerr, .status, fab, .rab [rab$l_stv]);
;  1506     1492  4         IF .fil_linenum EQL 0
;  1507     1493  4         THEN
;  1508     1494  4             BEGIN
;  1509     1495  4             tmp_desc [dsc$w_length]  = .nam_block [nam$b_rsl];
;  1510     1496  4             tmp_desc [dsc$a_pointer] = .nam_block [nam$l_rsa];
;  1511     1497  4             SIGNAL (srh$_nullfile, 1, tmp_desc);
```

```
;  1512     1498  3              END;
;  1513     1499  3          RETURN false;                   ! and exit
;  1514     1500  2          END;
;  1515     1501  2
;  1516     1502  2      !
;  1517     1503  2      ! Bump the statistics info
;  1518     1504  2      !
;  1519     1505  2      fil_linenum = .fil_linenum + 1;         ! Bump the line (record) cntr
;  1520   L 1506  2      %IF switch_statistics
;  1521     1507  2      %THEN
;  1522     1508  2          stat_totrec = .stat_totrec + 1;             ! Bump the total too
;  1523     1509  2          stat_totchr = .stat_totchr + .get_recsiz;   ! Add the character count
;  1524     1510  2      %FI
;  1525     1511  2
;  1526     1512  2      IF .wdw_previous                ! Save the window if windowing is active
;  1527     1513  2      THEN
;  1528     1514  2          advance_window();
;  1529     1515  2
;  1530     1516  2      !
;  1531     1517  2      ! return the length and address and RFA of the new record
;  1532     1518  2      !
;  1533     1519  2      .len = .get_recsiz;
;  1534     1520  2      .adr = .rab [rab$l_rbf];
;  1535     1521  2
;  1536     1522  2      RETURN true;
;  1537     1523  2
;  1538     1524  1  END;


                                                .PSECT  $OWN$_DZRO,NOEXE,2

                                        01347   .BLKB   1
                                        01348 TRUNC:    .BLKB   4

                                                .EXTRN  SYS$GET

                                                .PSECT  $CODE$,NOWRT,2

                    08      0000'   CF  E9 00000 GET_NEXT_RECORD:
                                                BLBC    NEW_FILE, 1$                    ;  1461
                            0000'   CF  94 00005                BLBC    NEW_FILE                ;  1464
                            0000'   CF  D4 00009                CLRL    TRUNC                   ;  1465
                            0000'   CF  9F 0000D 1$:            PUSHAB  RAB                     ;  1468
00000000G                   00          FB 00011                CALLS   #1, SYS$GET             ;
                            52      0000'   CF  3C 00018       MOVZWL  RAB+34, GET_RECSIZ      ;  1469
000181A8                    8F          50  D1 0001D           CMPL    STATUS, #98728          ;  1471
                                        0C  13 00024           BEQL    2$                      ;
                            43          50  E9 00026           BLBC    STATUS, 4$              ;  1472
00000800                    8F          52  D1 00029           CMPL    GET_RECSIZ, #2048       ;
                                        37  1B 00030           BLEQU   3$                      ;
                            52      0800    8F  3C 00032 2$:    MOVZWL  #2048, GET_RECSIZ       ;  1475
                            77      0000'   CF  E8 00037       BLBS    TRUNC, 6$               ;  1476
                0000'       CF          01  D0 0003C           MOVL    #1, TRUNC               ;  1479
                0000'       CF  0000'   CF  9B 00041           MOVZBW  NAM_BLOCK+3, TMP_DESC   ;  1480
                0000'       CF  0000'   CF  D0 00048           MOVL    NAM_BLOCK+4, TMP_DESC+4 ;  1481
                            7E      0800    8F  3C 0004F       MOVZWL  #2048, -(SP)            ;  1482
```

```
                                0000'  CF  9F 00054          PUSHAB  TMP_DESC                                        ;
                                       02  DD 00058          PUSHL   #2                                              ;
                           00000000G   8F  DD 0005A          PUSHL   #SRH$_TRUNCATE                                  ;
                00000000G  00          04  FB 00060          CALLS   #4, LIB$SIGNAL                                  ;
                                       4A  11 00067          BRB     6$                                              ;  1471
                           47          50  E8 00069  3$:     BLBS    STATUS, 6$                                      ;  1486
                0001827A   8F          50  D1 0006C  4$:     CMPL    STATUS, #98938                                  ;  1489
                                       15  13 00073          BEQL    5$                                              ;
                                0000'  CF  DD 00075          PUSHL   RAB+12                                          ;  1491
                                0000'  CF  9F 00079          PUSHAB  FAB                                             ;
                                       50  DD 0007D          PUSHL   STATUS                                          ;
                           00D710B0    8F  DD 0007F          PUSHL   #14094512                                       ;
                     0000V CF          04  FB 00085          CALLS   #4, FILE_ERROR                                  ;
                                0000'  CF  D5 0008A  5$:     TSTL    FIL_LINENUM                                     ;  1492
                                       46  12 0008E          BNEQ    8$                                              ;
                0000'  CF       0000'  CF  9B 00090          MOVZBW  NAM_BLOCK+3, TMP_DESC                           ;  1495
                0000'  CF       0000'  CF  D0 00097          MOVL    NAM_BLOCK+4, TMP_DESC+4                         ;  1496
                                0000'  CF  9F 0009E          PUSHAB  TMP_DESC                                        ;  1497
                                       01  DD 000A2          PUSHL   #1                                              ;
                           00000000G   8F  DD 000A4          PUSHL   #SRH$_NULLFILE                                  ;
                00000000G  00          03  FB 000AA          CALLS   #3, LIB$SIGNAL                                  ;
                                       23  11 000B1          BRB     8$                                              ;  1499
                                0000'  CF  D6 000B3  6$:     INCL    FIL_LINENUM                                     ;  1505
                                0000'  CF  D6 000B7          INCL    STAT_TOTREC                                     ;  1508
                     0000'  CF          52  C0 000BB          ADDL2   GET_RECSIZ, STAT_TOTCHR                         ;  1509
                            05   0000'  CF  E9 000C0          BLBC    WDW_PREVIOUS, 7$                                ;  1512
                     0000V  CF          00  FB 000C5          CALLS   #0, ADVANCE_WINDOW                              ;  1514
                            63          52  D0 000CA  7$:     MOVL    GET_RECSIZ, (LEN)                               ;  1519
                            64   0000'  CF  DC 000CD          MOVL    RAB+40, (ADR)                                   ;  1520
                            50          01  D0 000D2          MOVL    #1, R0                                          ;  1522
                                           05  000D5          RSB                                                     ;
                                       50  D4 000D6  8$:     CLRL    R0                                              ;  1524
                                           05  000D8          RSB                                                     ;

; Routine Size:  217 bytes,    Routine Base:  $CODE$ + 0992
```

```
1525   1 ROUTINE advance_window : NOVALUE =
1526   2 BEGIN
1527   2 !
1528   2 ! Increment the number of records available for display
1529   2 !
1530   2 IF .wdw_pre_cntr LEQU .wdw_pre_recs
1531   2 THEN
1532   3     BEGIN
1533   3     wdw_pre_cntr = .wdw_pre_cntr + 1;
1534   3     wdw_ovfl = false;
1535   3     END
1536   2 ELSE                            ! Window can't be contiguous
1537   2     wdw_ovfl = true;            ! with previous window.
1538   2 !
1539   2 ! Scroll the window to accomodate the next record, wraparound if needed
1540   2 !
1541   2 IF .wdw_pre_buff GTRU .wdw_pre_recs     ! if we have hit the end
1542   2 THEN                                    ! then
1543   2     wdw_pre_buff = 1                    !  reset to top of array
1544   2 ELSE                                    ! otherwise
1545   2     wdw_pre_buff = .wdw_pre_buff + 1;   !   advance to next position
1546   2 !
1547   2 ! Save the RFA in the previous record vector
1548   2 !
1549   2 CH$MOVE(rab$s_rfa, rab [rab$w_rfa], rfa_vec [.wdw_pre_buff-1,0,0,0,0]);
1550   2
1551   2 RETURN;
1552   1 END;


                                    007C 00000 ADVANCE_WINDOW:
                                                       .WORD   Save R2,R3,R4,R5,R6                  ; 1525
             56     0000'  CF   9E 00002               MOVAB   WDW_PRE_BUFF, R6                     ;
       F0    A6        F8  A6   D1 00007               CMPL    WDW_PRE_CNTR, WDW_PRE_RECS           ; 1530
                           08   1A 0000C               BGTRU   1$                                   ;
                       F8  A6   D6 0000E               INCL    WDW_PRE_CNTR                         ; 1533
                       25  A6   94 00011               CLRB    WDW_OVFL                             ; 1534
                           04   11 00014               BRB     2$                                   ; 1530
       25    A6            01   90 00016 1$:           MOVB    #1, WDW_OVFL                         ; 1537
       F0    A6            66   D1 0001A 2$:           CMPL    WDW_PRE_BUFF, WDW_PRE_RECS           ; 1541
                           05   1B 0001E               BLEQU   3$                                   ;
             66            01   D0 00020               MOVL    #1, WDW_PRE_BUFF                     ; 1543
                           02   11 00023               BRB     4$                                   ;
                           66   D6 00025 3$:           INCL    WDW_PRE_BUFF                         ; 1545
    50       66            06   C5 00027 4$:           MULL3   #6, WDW_PRE_BUFF, R0                 ; 1549
             50        30  A6   C0 0002B               ADDL2   RFA_VEC, R0                          ;
 FA  A0    0000'   CF      06   28 0002F               MOVC3   #6, RAB+16, -6(R0)                   ;
                                04 00036               RET                                          ; 1552

; Routine Size:  55 bytes,    Routine Base:  $CODE$ + 0A6B
```

```
;  1569     1553  1 ROUTINE std_search_file : NOVALUE =                    ! Searches the file
;  1570     1554  1
;  1571     1555  1 !++
;  1572     1556  1 ! Functional description
;  1573     1557  1 !
;  1574     1558  1 !       This routine searches one file (fab) for one of the search strings
;  1575     1559  1 !       and outputs any occurrences.
;  1576     1560  1 !
;  1577     1561  1 ! Calling sequence
;  1578     1562  1 !
;  1579     1563  1 !       search_file
;  1580     1564  1 !
;  1581     1565  1 ! Input parameters
;  1582     1566  1 !
;  1583     1567  1 !       none
;  1584     1568  1 !
;  1585     1569  1 ! Implicit inputs
;  1586     1570  1 !
;  1587     1571  1 !       fab             - The FAB  for the file specification
;  1588     1572  1 !       nam             - The related NAMe block
;  1589     1573  1 !
;  1590     1574  1 ! Output parameters
;  1591     1575  1 !
;  1592     1576  1 !       none
;  1593     1577  1 !
;  1594     1578  1 ! Implicit outputs
;  1595     1579  1 !
;  1596     1580  1 !       The filename and any occurrences of the string are put to
;  1597     1581  1 !       SYS$OUTPUT.
;  1598     1582  1 !
;  1599     1583  1 ! Routine value
;  1600     1584  1 !
;  1601     1585  1 !       novalue
;  1602     1586  1 !
;  1603     1587  1 ! Side effects
;  1604     1588  1 !
;  1605     1589  1 !       Errors are signaled. Messages are put to SYS$OUTPUT.
;  1606     1590  1 !
;  1607     1591  1 !--
;  1608     1592  1
;  1609     1593  2 BEGIN
;  1610     1594  2
;  1611     1595  2 WHILE 1 DO                                              ! Main search loop
;  1612     1596  2         BEGIN
;  1613     1597  2         LOCAL
;  1614     1598  2             rec_siz,            ! Length of input record
;  1615     1599  2             rec_ptr,            ! Pointer to record
;  1616     1600  2             status;
;  1617     1601  2
;  1618     1602  2         IF NOT get_next_record (rec_siz, rec_ptr)
;  1619     1603  2         THEN
;  1620     1604  2             EXITLOOP;
;  1621     1605  2
;  1622     1606  2         !
;  1623     1607  2         ! See if record contains search string
;  1624     1608  2         !
;  1625     1609  3         IF std_match(.rec_siz, .rec_ptr)        ! See if string is present
```

```
;  1626     1610  3          THEN
;  1627     1611  4              BEGIN
;  1628     1612  4              IF .out_printing                        ! we know wdw_zero is off
;  1629     1613  4              THEN
;  1630     1614  5                  BEGIN
;  1631     1615  5                  IF NOT .fil_found                               ! If not already found
;  1632     1616  6                      AND (.nam_block [nam$v_wildcard] OR         ! and wildcard filespec
;  1633     1617  6                      .cnt_infile GTRU 1)                         ! or list of files
;  1634     1618  5                      AND .qua_heading                            ! And heading requested
;  1635     1619  5                  THEN
;  1636     1620  6                      BEGIN       ! Print blank, filename, blank
;  1637     1621  6                      srh$put_output(0, 0);
;  1638     1622  6                      srh$put_output(30, stars_30);
;  1639     1623  6                      srh$put_output(.nam_block [nam$b_rsl], .nam_block [nam$l_rsa]);
;  1640     1624  6                      srh$put_output(0, 0);
;  1641     1625  6                      END
;  1642     1626  5                  ELSE
;  1643     1627  6                      BEGIN
;  1644     1628  6                      IF .fil_found                   ! If already found,
;  1645     1629  6                      THEN
;  1646     1630  7                          BEGIN
;  1647     1631  7                          IF      .wdw_frame          ! Separate the displays if the
;  1648     1632  7                              AND .wdw_ovfl           ! windows are discontiguous
;  1649     1633  7                              AND .qua_heading        ! And heading requested
;  1650     1634  7                          THEN
;  1651     1635  7                              srh$put_output(15, stars_30);
;  1652     1636  6                          END;
;  1653     1637  5                      END;
;  1654     1638  5                  !
;  1655     1639  5                  ! Put the previous records (if any) and the current record
;  1656     1640  5                  !
;  1657     1641  5                  IF .wdw_pre_cntr LEQ 1
;  1658     1642  5                  THEN
;  1659     1643  5                      ! pre_cntr LEQ 1 is our flag then the window EQL 1,
;  1660     1644  5                      ! just print the current record, allowing for reformat
;  1661     1645  5                      !
;  1662     1646  5                      format_n_put(.rec_siz, .rec_ptr, .fil_linenum)
;  1663     1647  5                  ELSE
;  1664     1648  6                      BEGIN
;  1665     1649  6                      LOCAL
;  1666     1650  6                          status,
;  1667     1651  6                          idx;
;  1668     1652  6                      !
;  1669     1653  6                      ! Do a find by RFA to set to start of window
;  1670     1654  6                      !
;  1671     1655  6                      rab [rab$b_rac] = rab$c_rfa;        ! Set to random by RFA
;  1672     1656  7                      idx = (.wdw_pre_recs - .wdw_pre_cntr + .wdw_pre_buff + 1)
;  1673     1657  6                            MOD (.wdw_pre_recs + 1);
;  1674     1658  6                      CH$MOVE(rab$s_rfa, rfa_vec [.idx,0,0,0,0], rab [rab$w_rfa]);
;  1675     1659  7                      IF NOT (status = $FIND(RAB = rab)) ! Find the record
;  1676     1660  6                      THEN
;  1677     1661  7                          BEGIN
;  1678     1662  7                          SIGNAL_STOP (srh$_rfaerr, 2, .rfa_vec [.idx,0,0,32,0],
;  1679     1663  7                                       .rfa_vec [.idx,4,0,16,0], .status, .rab [rab$[_stv]);
;  1680     1664  7                          RETURN;
;  1681     1665  6                          END;
;  1682     1666  6                      rab [rab$b_rac] = rab$c_seq;        ! Back to sequential mode
```

```
;  1683     1667  6                    !
;  1684     1668  6                    ! Now do GETs to reread the records for the window
;  1685     1669  6                    !
;  1686     1670  6                    INCRU i FROM 1 TO .wdw_pre_cntr     ! Now put the records
;  1687     1671  6                    DO
;  1688     1672  7                        BEGIN
;  1689     1673  7                        LOCAL
;  1690     1674  7                            actual_line,        ! Line number adjusted for wdw
;  1691     1675  7                            len,
;  1692     1676  7                            status;
;  1693     1677  7                        status = $GET(RAB = rab);
;  1694     1678  7                        len = .rab [rab$w_rsz]; ! Get actual length read
;  1695     1679  7                        IF (.status EQLU rms$_rtb) OR
;  1696     1680  8                           (.status AND (.len GTRU io_buff_sz))
;  1697     1681  7                        THEN
;  1698     1682  7                            len = io_buff_sz    ! Would have warned at 1st get
;  1699     1683  7                        ELSE
;  1700     1684  7                            IF NOT .status      ! If any other error
;  1701     1685  7                            THEN                ! signal and stop
;  1702     1686  8                                BEGIN
;  1703     1687  8                                SIGNAL_STOP (srh$_rfaerr, 2, .rfa_vec [.idx,0,0,32,0],
;  1704     1688  8                                    .rfa_vec [.idx,4,0,16,0], .status, .rab [rab$l_stv]);
;  1705     1689  8                                RETURN;
;  1706     1690  7                                END;
;  1707     1691  7                        actual_line = .fil_linenum-(.wdw_pre_cntr-.i);
;  1708     1692  7                        format_n_put(.len, .rab [rab$l_rbf], .actual_line);
;  1709     1693  6                        END;
;  1710     1694  5                    END;
;  1711     1695  5                wdw_pre_cntr = 0;               ! First half of window is done
;  1712     1696  5                wdw_sub_cntr = .wdw_sub_recs;
;  1713     1697  5                END
;  1714     1698  4            ELSE
;  1715     1699  5                BEGIN
;  1716     1700  5                IF .wdw_zero                    ! Print filename if /WIN=0
;  1717     1701  5                THEN
;  1718     1702  5                    IF NOT .fil_found           ! Only need to do it once though
;  1719     1703  5                    THEN
;  1720     1704  5                        srh$put_output(.nam_block [nam$b_rsl], .nam_block [nam$l_rsa]);
;  1721     1705  4                END;
;  1722     1706  4                fil_found = true;               ! Set match flag for this file
;  1723     1707  4                found_any = true;               ! Set global match flag
;  1724     1708  4                fil_totmat = .fil_totmat+1;     ! Count match for this file
;  1725     1709  4                END
;  1726     1710  3            ELSE                    ! We don't have a match
;  1727     1711  4                BEGIN               ! If we have subsequent lines to display
;  1728     1712  5                IF .out_printing AND (.wdw_sub_cntr GTRU 0)
;  1729     1713  4                THEN
;  1730     1714  5                    BEGIN
;  1731     1715  5                    format_n_put(.rec_siz, .rec_ptr, .fil_linenum);
;  1732     1716  5                    wdw_pre_cntr = 0;       ! remember what we've shown.
;  1733     1717  5                    wdw_sub_cntr = .wdw_sub_cntr - 1;
;  1734     1718  4                    END;
;  1735     1719  4                END
;  1736     1720  2            END;
;  1737     1721  2 RETURN;
;  1738     1722  1 END;
```

```
                                        .EXTRN  SYS$FIND

                        OFFC 00000 STD_SEARCH_FILE:
                                        .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10,R11            ; 1553
5B      0000V   CF   9E 00002          MOVAB   FORMAT_N_PUT, R11                               ;
5A      0000V   CF   9E 00007          MOVAB   SRH$PUT_OUTPUT, R10                             ;
59      0000'   CF   9E 0000C          MOVAB   NAM_BLOCK+4, R9                                 ;
58      0000'   CF   9E 00011          MOVAB   WDW_PRE_CNTR, R8                                ;
5E            08   C2 00016          SUBL2   #8, SP                                          ;
54            6E   9E 00019 1$:       MOVAB   REC_PTR, R4                                     ; 1602
53        04  AE   9E 0001C          MOVAB   REC_SIZ, R3                                     ;
          FECD  30 00020              BSBW    GET_NEXT_RECORD                                 ;
01            50   E8 00023          BLBS    R0, 2$                                          ;
                   04 00026          RET                                                     ;
55            6E   D0 00027 2$:       MOVL    REC_PTR, R5                                     ; 1609
54        04  AE   D0 0002A          MOVL    REC_SIZ, R4                                     ;
          0000V 30 0002E              BSBW    STD_MATCH                                       ;
03            50   E8 00031          BLBS    R0, 3$                                          ;
              0132 31 00034          BRW     20$                                             ;
03        29  A8   E8 00037 3$:       BLBS    OUT_PRINTING, 4$                                ; 1612
              010F 31 0003B          BRW     18$                                             ;
2D        35  A8   E8 0003E 4$:       BLBS    FIL_FOUND, 7$                                   ; 1615
06        31  A9   E8 00042          BLBS    NAM_BLOCK+53, 5$                                ; 1616
01        0C  A8   D1 00046          CMPL    CNT_INFILE, #1                                  ; 1617
                1F   1B 0004A          BLEQU   6$                                              ;
1B        31  A8   E9 0004C 5$:       BLBC    QUA_HEADING, 6$                                 ; 1618
                52   7C 00050          CLRQ    R2                                              ; 1621
                6A   16 00052          JSB     SRH$PUT_OUTPUT                                  ;
          53  0000' CF   9E 00054      MOVAB   STARS_30, R3                                    ; 1622
          52        1E   D0 00059      MOVL    #30, R2                                         ;
                6A   16 0005C          JSB     SRH$PUT_OUTPUT                                  ;
          53        69   D0 0005E      MOVL    NAM_BLOCK+4, R3                                 ; 1623
          52    FF  A9   9A 00061      MOVZBL  NAM_BLOCK+3, R2                                 ;
                6A   16 00065          JSB     SRH$PUT_OUTPUT                                  ;
                52   7C 00067          CLRQ    R2                                              ; 1624
                18   11 00069          BRB     8$                                              ;
16        35  A8   E9 0006B 6$:       BLBC    FIL_FOUND, 9$                                   ; 1628
12        2C  A8   E9 0006F 7$:       BLBC    WDW_FRAME, 9$                                   ; 1631
0E        2D  A8   E9 00073          BLBC    WDW_OVFL, 9$                                    ; 1632
0A        31  A8   E9 00077          BLBC    QUA_HEADING, 9$                                 ; 1633
          53  0000' CF   9E 0007B      MOVAB   STARS_30, R3                                    ; 1635
          52        0F   D0 00080      MOVL    #15, R2                                         ;
                6A   16 00083 8$:       JSB     SRH$PUT_OUTPUT                                  ;
01            68   D1 00085 9$:       CMPL    WDW_PRE_CNTR, #1                                ; 1641
                14   14 00088          BGTR    10$                                             ;
          54  24  A8   D0 0008A        MOVL    FIL_LINENUM, R4                                 ; 1646
          53        6E   D0 0008E      MOVL    REC_PTR, R3                                     ;
          52    04  AE   D0 00091      MOVL    REC_SIZ, R2                                     ;
                6B   16 00095          JSB     FORMAT_N_PUT                                    ;
              00AA 31 00097          BRW     17$                                             ;
        00CA  C9        02   90 0009A 10$:      MOVB    #2, RAB+30                              ; 1655
51        F8  A8        68   C3 0009F        SUBL3   WDW_PRE_CNTR, WDW_PRE_RECS, R1           ; 1656
          51    08  A8   C0 000A4          ADDL2   WDW_PRE_BUFF, R1                            ;
50        F8  A8        01   C1 000A8        ADDL3   #1, WDW_PRE_RECS, R0                    ; 1657
7E        01            51   7A 000AD        EMUL    #1, R1, #1, -(SP)                       ;
```

```
                50              8E                      50  7B 000B2          EDIV    R0, (SP)+, IDX, IDX
                56              50                      06  C5 000B7          MULL3   #6, IDX, R6                                  1658
            00BC    C9      38 B846                     06  28 000BB          MOVC3   #6, @RFA_VEC[R6], RAB+16
                                        00AC            C9  9F 000C3          PUSHAB  RAB                                         1659
                00000000G   00                          01  FB 000C7          CALLS   #1, SYS$FIND
                            3B                          50  E9 000CE          BLBC    STATUS, 14$
                                        00CA            C9  94 000D1          CLRB    RAB+30                                      1666
                            57                          68  D0 000D5          MOVL    WDW_PRE_CNTR, R7                            1670
                            55                          01  D0 000D8          MOVL    #1, I
                                                        62  11 000DB          BRB     16$
                                        00AC            C9  9F 000DD 11$:     PUSHAB  RAB                                         1677
                00000000G   00                          01  FB 000E1          CALLS   #1, SYS$GET
                            52          00CE            C9  3C 000E8          MOVZWL  RAB+34, LEN                                 1678
                000181A8    8F                          50  D1 000ED          CMPL    STATUS, #98728                              1679
                                                        0C  13 000F4          BEQL    12$
                            13                          50  E9 000F6          BLBC    STATUS, 14$                                 1680
                00000800    8F                          52  D1 000F9          CMPL    LEN, #2048
                                                        07  1B 00100          BLEQU   13$
                            52          0800            8F  3C 00102 12$:     MOVZWL  #2048, LEN                                  1682
                                                        24  11 00107          BRB     15$
                            21                          50  E8 00109 13$:     BLBS    STATUS, 15$                                 1684
                                        00B8            C9  DD 0010C 14$:     PUSHL   RAB+12                                      1688
                                                        50  DD 00110          PUSHL   STATUS
                50                      56      38      A8  C1 00112          ADDL3   RFA_VEC, R6, R0
                                        7E      04      A0  3C 00117          MOVZWL  4(R0), -(SP)
                                                        60  DD 0011B          PUSHL   (R0)                                        1687
                                                        02  DD 0011D          PUSHL   #2
                                    00000000G           8F  DD 0011F          PUSHL   #SRH$_RFAERR
            00000000G   00                              06  FB 00125          CALLS   #6, LIB$STOP
                                                        04  0012C          RET                                                 1686
            50                  55                      68  C3 0012D 15$:     SUBL3   WDW_PRE_CNTR, I, R0                         1691
            54                  50      24              A8  C1 00131          ADDL3   FIL_LINENUM, R0, ACTUAL_LINE
                                53      00D4            C9  D0 00136          MOVL    RAB+40, R3                                  1692
                                                        6B  16 0013B          JSB     FORMAT_N_PUT
                                                        55  D6 0013D          INCL    I                                           1670
                                57                      55  D1 0013F 16$:     CMPL    I, R7
                                                        99  1B 00142          BLEQU   11$
                                                        68  D4 00144 17$:     CLRL    WDW_PRE_CNTR                                1695
                        04      A8          FC          A8  D0 00146          MOVL    WDW_SUB_RECS, WDW_SUB_CNTR                  1696
                                                        11  11 0014B          BRB     19$                                         1612
                                0D          2B          A8  E9 0014D 18$:     BLBC    WDW_ZERO, 19$                               1700
                                09          35          A8  E8 00151          BLBS    FIL_FOUND, 19$                              1702
                                53                      69  D0 00155          MOVL    NAM_BLOCK+4, R3                             1704
                                52          FF          A9  9A 00158          MOVZBL  NAM_BLOCK+3, R2
                                                        6A  16 0015C          JSB     SRH$PUT_OUTPUT
                        34      A8          0101        8F  B0 0015E 19$:     MOVW    #257, FOUND_ANY                             1707
                                            20          A8  D6 00164          INCL    FIL_FOTMAT                                  1708
                                                        1B  11 00167          BRB     21$                                         1609
                                17          29          A8  E9 00169 20$:     BLBC    OUT_PRINTING, 21$                           1712
                                            04          A8  D5 0016D          TSTL    WDW_SUB_CNTR
                                                        12  13 00170          BEQL    21$
                                54          24          A8  D0 00172          MOVL    FIL_LINENUM, R4                             1715
                                53                      6E  D0 00176          MOVL    REC_PTR, R3
                                52          04          AE  D0 00179          MOVL    REC_SIZ, R2
                                                        6B  16 0017D          JSB     FORMAT_N_PUT
                                                        68  D4 0017F          CLRL    WDW_PRE_CNTR                                1716
                                            04          A8  D7 00181          DECL    WDW_SUB_CNTR                                1717
```

```
                                FE92  31 00184 21$:    BRW     1$                      ; 1609
                                      04 00187          RET                           ; 1722

; Routine Size:  392 bytes,    Routine Base:  $CODE$ + 0AA2
```

```
;  1740     1723  1 ROUTINE std_match (size, buf) : JSB_STDMAT =
;  1741     1724  1
;  1742     1725  1 !++
;  1743     1726  1 ! Functional description
;  1744     1727  1 !
;  1745     1728  1 !       This routine checks to see if any of the search strings
;  1746     1729  1 !       is present in the current record
;  1747     1730  1 !
;  1748     1731  1 ! Calling sequence
;  1749     1732  1 !
;  1750     1733  1 !       std_match(.size, buf);
;  1751     1734  1 !
;  1752     1735  1 ! Input parameters
;  1753     1736  1 !
;  1754     1737  1 !       size = the length of the record
;  1755     1738  1 !       buf  = the address of the record
;  1756     1739  1 !
;  1757     1740  1 ! Implicit inputs
;  1758     1741  1 !
;  1759     1742  1 !       srhstr_desc     - The array of search string descriptors
;  1760     1743  1 !       cnt_srhstr      - The count of search string descriptors
;  1761     1744  1 !
;  1762     1745  1 ! Output parameters
;  1763     1746  1 !
;  1764     1747  1 !       none
;  1765     1748  1 !
;  1766     1749  1 ! Implicit outputs
;  1767     1750  1 !
;  1768     1751  1 !       none
;  1769     1752  1 !
;  1770     1753  1 ! Routine value
;  1771     1754  1 !
;  1772     1755  1 !       0 - None of the search strings was present
;  1773     1756  1 !       1 - At least one search string was present
;  1774     1757  1 !
;  1775     1758  1 ! Side effects
;  1776     1759  1 !
;  1777     1760  1 !       none
;  1778     1761  1 !
;  1779     1762  1 !--
;  1780     1763  1 !
;  1781     1764  2 BEGIN
;  1782     1765  2
;  1783     1766  2 LOCAL
;  1784     1767  2     rec_ptr     : REF BLOCK [,BYTE],            ! Pointer to string
;  1785     1768  2     upc_buf     : BLOCK [io_buff_sz, BYTE],     ! In case we must upcase
;  1786     1769  2     match_found;                                ! String found flag
;  1787     1770  2
;  1788     1771  2
;  1789     1772  2     IF .qua_exact
;  1790     1773  2     THEN
;  1791     1774  2         rec_ptr = .buf                          ! Get the input record address
;  1792     1775  2     ELSE
;  1793     1776  3         BEGIN
;  1794     1777  3         upcase(.size, .buf, upc_buf);           ! Upcase the record
;  1795     1778  3         rec_ptr = upc_buf;                      ! Point it to new version
;  1796     1779  2         END;
```

```
;  1797          1780  2
;  1798          1781  2      match_found = .mat_and;             ! 0 if OR or NOR, 1 if AND or NAND
;  1799          1782  2
;  1800          1783  2      INCR sdx FROM 0 TO .cnt_srhstr-1
;  1801          1784  2      DO
;  1802          1785  3          BEGIN
;  1803          1786  3          LOCAL
;  1804          1787  3              ptr;                                ! Pointer to found string
;  1805          1788  3
;  1806          1789  3          ptr = CH$FIND_SUB(.size, .rec_ptr,
;  1807          1790  3                            .srhstr_desc [.sdx, dsc$w_length],
;  1808          1791  3                            .srhstr_desc [.sdx, dsc$a_pointer]);
;  1809          1792  3
;  1810          1793  3          IF .mat_and             ! If AND or NAND
;  1811          1794  3          THEN
;  1812          1795  4                  BEGIN
;  1813          1796  4                  IF CH$FAIL(.ptr)
;  1814          1797  4                  THEN
;  1815          1798  5                      BEGIN
;  1816          1799  5                      match_found = false;
;  1817          1800  5                      EXITLOOP;
;  1818          1801  4                      END;
;  1819          1802  4                  END
;  1820          1803  3          ELSE                    ! Else OR or NOR
;  1821          1804  4                  BEGIN
;  1822          1805  4                  IF NOT CH$FAIL(.ptr)
;  1823          1806  4                  THEN
;  1824          1807  5                      BEGIN
;  1825          1808  5                      match_found = true;
;  1826          1809  5                      EXITLOOP;
;  1827          1810  4                      END;
;  1828          1811  3                  END;
;  1829          1812  2          END;
;  1830          1813  2
;  1831          1814  2      IF .mat_negate THEN match_found = NOT .match_found; ! Is it NOR or NAND?
;  1832          1815  2
;  1833        L 1816  2      %IF switch_statistics
;  1834          1817  2      %THEN
;  1835          1818  2          IF .match_found THEN stat_totmat = .stat_totmat+1; ! Bump match count
;  1836          1819  2      %FI
;  1837          1820  2
;  1838          1821  2      RETURN .match_found;
;  1839          1822  1      END;


                        7E              57  7D 00000 STD_MATCH:
                                                    MOVQ    R7, -(SP)                       ; 1723
                        7E              55  7D 00003            MOVQ    R5, -(SP)
                        5E      F800    CE  9E 00006            MOVAB   -2048(SP), SP
                        05      0000'   CF  E9 0000B            BLBC    QUA_EXACT, 1$           ; 1772
                        58              55  D0 00010            MOVL    BUF, REC_PTR            ; 1774
                                        0C  11 00013            BRB     2$
                        53              6E  9E 00015 1$:        MOVAB   UPC_BUF, R3             ; 1777
                        51              54  7D 00018            MOVQ    SIZE, R1
```

```
                        0000V 30 0001B          BSBW    UPCASE                                          ;
                     58   6E  9E 0001E          MOVAB   UPC_BUF, REC_PTR                                ; 1778
                     57 0000' CF 9A 00021 2$:    MOVZBL  MAT_AND, MATCH_FOUND                            ; 1781
                     55   01  CE 00026          MNEGL   #1, SDX                                         ; 1789
                          2F  11 00029          BRB     6$
                0000'CF45  7F 0002B 3$:         PUSHAQ  SRHSTR_DESC[SDX]                                ; 1790
                     56   9E  3C 00030          MOVZWL  @(SP)+, R6
                0000'CF45  7F 00033          PUSHAQ  SRHSTR_DESC+4[SDX]                              ; 1791
                     50   9E  D0 00038          MOVL    @(SP)+, R0
        68      54   60   56  39 0003B          MATCHC  R6, (R0), SIZE, (REC_PTR)
                          03  13 00040          BEQL    4$
                     53   56  D0 00042          MOVL    R6, R3
                     53   56  C2 00045 4$:       SUBL2   R6, R3
                     06 0000' CF E9 00048          BLBC    MAT_AND, 5$                                     ; 1796
                          0B  12 0004D          BNEQ    6$
                     57   D4  0004F          CLRL    MATCH_FOUND                                     ; 1799
                          0D  11 00051          BRB     7$                                              ; 1798
                          05  13 00053 5$:       BEQL    6$                                              ; 1805
                     57   01  D0 00055          MOVL    #1, MATCH_FOUND                                 ; 1808
                          06  11 00058          BRB     7$                                              ; 1807
                CB   55 0000' CF F2 0005A 6$:       AOBLSS  CNT_SRHSTR, SDX, 3$                             ; 1783
                     03 0000' CF E9 00060 7$:       BLBC    MAT_NEGATE, 8$                                  ; 1814
                     57   57  D2 00065          MCOML   MATCH_FOUND, MATCH_FOUND
                     04   57  E9 00068 8$:       BLBC    MATCH_FOUND, 9$                                 ; 1818
                0000' CF  D6 0006B          INCL    STAT_TOTMAT
                     50   57  D0 0006F 9$:       MOVL    MATCH_FOUND, R0                                 ; 1821
                     5E 0800  CE 9E 00072          MOVAB   2048(SP), SP                                    ; 1822
                        01E0  8F BA 00077          POPR    #^M<R5,R6,R7,R8>
                              05 0007B          RSB                                                     ;

; Routine Size:  124 bytes,    Routine Base:  $CODE$ + 0C2A
```

```
;  1841     1823  1 ROUTINE file_error (     msg,                        ! The SEARCH message code
;  1842     1824  1                          rms_status,                 ! The main RMS error code
;  1843     1825  1                          fabb : REF BLOCK [,BYTE],   ! Address of FAB for file
;  1844     1826  1                          stv) =                      ! The RMS STV value
;  1845     1827  2 BEGIN
;  1846     1828  2
;  1847     1829  2 LOCAL
;  1848     1830  2     nam_blk : REF BLOCK [,BYTE];          ! Pointer to the name block
;  1849     1831  2
;  1850     1832  2 nam_blk = .fabb [fab$l_nam];              ! Get pointer to the name block
;  1851     1833  2
;  1852     1834  2 IF .nam_blk [nam$b_rsl] GTRU 0
;  1853     1835  2 THEN
;  1854     1836  2     BEGIN
;  1855     1837  2     tmp_desc [dsc$w_length]  = .nam_blk [nam$b_rsl];    ! Create file name desc
;  1856     1838  2     tmp_desc [dsc$a_pointer] = .nam_blk [nam$l_rsa];    ! ...
;  1857     1839  2     END
;  1858     1840  2 ELSE IF .nam_blk [nam$b_esl] GTRU 0
;  1859     1841  2 THEN
;  1860     1842  2     BEGIN
;  1861     1843  2     tmp_desc [dsc$w_length]  = .nam_blk [nam$b_esl];    ! Create file name desc
;  1862     1844  2     tmp_desc [dsc$a_pointer] = .nam_blk [nam$l_esa];    ! ...
;  1863     1845  2     END
;  1864     1846  2 ELSE
;  1865     1847  2     BEGIN
;  1866     1848  2     tmp_desc [dsc$w_length]  = .fabb [fab$b_fns];       ! Create file name desc
;  1867     1849  2     tmp_desc [dsc$a_pointer] = .fabb [fab$l_fna];       ! ...
;  1868     1850  2     END;
;  1869     1851  2
;  1870     1852  2 IF .rms_status EQL rms$_dme               ! Does RMS have enough memory?
;  1871     1853  2 THEN                                      ! No, print actual error
;  1872     1854  3     BEGIN
;  1873     1855  3     IF .wdw_pre_recs GTR 0                ! Do we have a window?
;  1874     1856  3     THEN
;  1875     1857  3         SIGNAL_STOP (.msg, 1, tmp_desc, .rms_status, .stv, srh$_wdw_maxprev)
;  1876     1858  3     ELSE
;  1877     1859  3         SIGNAL_STOP (.msg, 1, tmp_desc, .rms_status, .stv, srh$_insvirmem);
;  1878     1860  3     END
;  1879     1861  2 ELSE
;  1880     1862  2     SIGNAL (.msg, 1, tmp_desc, .rms_status, .stv);
;  1881     1863  2
;  1882     1864  2 RETURN (.msg OR %X'10000000');            ! Don't let $EXIT signal also.
;  1883     1865  2
;  1884     1866  1 END;


                                0004 00000 FILE_ERROR:
                                                .WORD   Save R2                                 ; 1823
                          52    0000' CF  9E 00002        MOVAB   TMP_DESC, R2                  ;
                          51      0C  AC  D0 00007        MOVL    FABB, R1                      ; 1832
                          50      28  A1  D0 0000B        MOVL    40(R1), NAM_BLK               ;
                                  03  A0  95 0000F        TSTB    3(NAM_BLK)                    ; 1834
                                      0B  13 00012        BEQL    1$                            ;
                          62      03  A0  9B 00014        MOVZBW  3(NAM_BLK), TMP_DESC          ; 1837
```

```
                    04   A2        04   A0  D0 00018          MOVL    4(NAM_BLK), TMP_DESC+4          ; 1838
                                        19  11 0001D          BRB     3$                              ; 1834
                              0B    A0  95 0001F  1$:        TSTB    11(NAM_BLK)                     ; 1840
                                        0B  13 00022          BEQL    2$
                         62   0B    A0  9B 00024          MOVZBW  11(NAM_BLK), TMP_DESC           ; 1843
                    04   A2   0C    A0  D0 00028          MOVL    12(NAM_BLK), TMP_DESC+4         ; 1844
                                        09  11 0002D          BRB     3$                              ; 1840
                         62   34    A1  9B 0002F  2$:        MOVZBW  52(R1), TMP_DESC                ; 1848
                    04   A2   2C    A1  D0 00033          MOVL    44(R1), TMP_DESC+4              ; 1849
               000184D4  8F   08    AC  D1 00038  3$:        CMPL    RMS_STATUS, #99540              ; 1852
                                        2A  12 00040          BNEQ    6$
                              0000'  CF  D5 00042          TSTL    WDW_PRE_RECS                    ; 1855
                                        08  15 00046          BLEQ    4$
                         00000000G  8F  DD 00048          PUSHL   #SRH$_WDW_MAXPREV               ; 1857
                                        06  11 0004E          BRB     5$
                         00D712F2   8F  DD 00050  4$:        PUSHL   #14095090                       ; 1859
                                10  AC  DD 00056  5$:        PUSHL   STV
                                08  AC  DD 00059          PUSHL   RMS_STATUS
                                    52  DD 0005C          PUSHL   R2
                                    01  DD 0005E          PUSHL   #1
                                04  AC  DD 00060          PUSHL   MSG
                    00000000G   00      06  FB 00063          CALLS   #6, LIB$STOP
                                        14  11 0006A          BRB     7$                              ; 1852
                                10  AC  DD 0006C  6$:        PUSHL   STV                             ; 1862
                                08  AC  DD 0006F          PUSHL   RMS_STATUS
                                    52  DD 00072          PUSHL   R2
                                    01  DD 00074          PUSHL   #1
                                04  AC  DD 00076          PUSHL   MSG
                    00000000G   00      05  FB 00079          CALLS   #5, LIB$SIGNAL
                50       04   AC 10000000  8F  C9 00080  7$:        BISL3   #268435456, MSG, R0     ; 1864
                                        04  00089          RET                                     ; 1866

; Routine Size:  138 bytes,    Routine Base:  $CODE$ + 0CA6
```

```
;  1886          1867  1 ROUTINE upcase(in_siz,in_ptr,out_ptr) : NOVALUE JSB_UPCASE =
;  1887          1868  1 !++
;  1888          1869  1 ! Functional description
;  1889          1870  1 !
;  1890          1871  1 !       This routine converts a string to uppercase.  In testing it
;  1891          1872  1 !       appears to be faster to do this sort of loop than execute the
;  1892          1873  1 !       MOVTC instruction on the 11/780.
;  1893          1874  1 !
;  1894          1875  1 ! Input parameters
;  1895          1876  1 !
;  1896          1877  1 !       in_siz = size of input record to convert
;  1897          1878  1 !       in_ptr = address input of record to convert
;  1898          1879  1 !       out_ptr = address of output record buffer
;  1899          1880  1 !
;  1900          1881  1 ! Output parameters
;  1901          1882  1 !
;  1902          1883  1 !       Input record copied to output record buffer and all
;  1903          1884  1 !       lowercase alphabetic characters converted to uppercase.
;  1904          1885  1 !
;  1905          1886  1 !--
;  1906          1887  2 BEGIN
;  1907          1888  2 REGISTER
;  1908          1889  2     char: BYTE;                                ! Character to test
;  1909          1890  2
;  1910          1891  2 DECR count FROM .in_siz-1 TO 0 DO             ! Upcase the characters
;  1911          1892  3         BEGIN
;  1912          1893  3         char = CH$RCHAR_A(in_ptr);             !  Get next character
;  1913          1894  3         IF .char GEQU 'a'                      !  Lower case letter?
;  1914          1895  3          AND .char LEQU 'z'
;  1915          1896  3         THEN
;  1916          1897  3                 char = .char - %O'40';         ! Convert to upper
;  1917          1898  3         CH$WCHAR_A(.char,out_ptr);             ! Move character to buffer
;  1918          1899  2         END;
;  1919          1900  1 END;


                                        15  11 00000 UPCASE:  BRB     3$                                      ;  1891
                          50            82  90 00002 1$:     MOVB    (IN_PTR)+, CHAR                         ;  1893
                    61    8F            50  91 00005         CMPB    CHAR, #97                               ;  1894
                                        09  1F 00009         BLSSU   2$                                      ;
                    7A    8F            50  91 0000B         CMPB    CHAR, #122                              ;  1895
                                        03  1A 0000F         BGTRU   2$                                      ;
                          50            20  82 00011         SUBB2   #32, CHAR                               ;  1897
                          83            50  90 00014 2$:     MOVB    CHAR, (OUT_PTR)+                        ;  1898
                          E8            51  F4 00017 3$:     SOBGEQ  COUNT, 1$                               ;  1891
                                        05  0001A             RSB                                             ;  1900

; Routine Size:  27 bytes,    Routine Base:  $CODE$ + 0D30
```

```
;  1921     1901  1 ROUTINE format_n_put(in_siz, in_ptr, line) : NOVALUE JSB_FORPUT =
;  1922     1902  1 !++
;  1923     1903  1 ! Functional description
;  1924     1904  1 !
;  1925     1905  1 !       The main reason to reformat is to prevent matches in .EXE and
;  1926     1906  1 !       .OBJ files from setting terminals in strange states.  The
;  1927     1907  1 !       /FORMAT=PASSALL qualifier is included to allow for exotic
;  1928     1908  1 !       character sets.
;  1929     1909  1 !
;  1930     1910  1 !       This routine copies the input buffer to the output file.  If
;  1931     1911  1 !       PASSALL is in effect, the input buffer is simply copied to output.
;  1932     1912  1 !       If another format is active, a routine will be called to do the
;  1933     1913  1 !       reformatting.
;  1934     1914  1 !
;  1935     1915  1 ! Input parameters
;  1936     1916  1 !
;  1937     1917  1 !       in_siz = size of input record to convert
;  1938     1918  1 !       in_ptr = address of input record to convert
;  1939     1919  1 !       line = line number to print if .NUMBERS is true
;  1940     1920  1 !
;  1941     1921  1 ! Outputs
;  1942     1922  1 !
;  1943     1923  1 !       The line will go to the output file if one exists.
;  1944     1924  1 !
;  1945     1925  1 !--
;  1946     1926  2 BEGIN
;  1947     1927  2
;  1948     1928  2 LOCAL
;  1949     1929  2     len,                                    ! Output length
;  1950     1930  2     op  : REF BLOCK [,BYTE];                ! Local output pointer
;  1951     1931  2
;  1952     1932  2 IF NOT .out_printing
;  1953     1933  2 THEN
;  1954     1934  2     RETURN;                                 ! Nothing at all to do
;  1955     1935  2
;  1956     1936  3 IF (.format EQL form_passall) AND (NOT .qua_numbers)
;  1957     1937  2 THEN
;  1958     1938  3     BEGIN
;  1959     1939  3     srh$put_output(.in_siz, .in_ptr);       ! Move the buffer.
;  1960     1940  3     RETURN;                                 ! And go back to caller
;  1961     1941  2     END;
;  1962     1942  2
;  1963     1943  2 !
;  1964     1944  2 ! We will have to copy the buffer for line numbers or reformatting, or both
;  1965     1945  2 !
;  1966     1946  2 len = .in_siz;                              ! Nothing output yet
;  1967     1947  2 op = .output_buff;                          ! Set to start of output
;  1968     1948  2
;  1969     1949  2 IF .qua_numbers
;  1970     1950  2 THEN
;  1971     1951  3     BEGIN
;  1972     1952  3     LOCAL
;  1973     1953  3         stat,
;  1974     1954  3         tmplen;
;  1975     1955  3     tmp_desc [dsc$w_length] = 7;
;  1976     1956  3     tmp_desc [dsc$a_pointer] = .op;
;  1977     1957  4     IF NOT (stat = $FAO(%ASCID '!6SL    ', 0, tmp_desc, .line))
```

```
;  1978          1958  3     THEN
;  1979          1959  3         SIGNAL_STOP (.stat);     ! Signal the error
;  1980          1960  3     len  = 7+.len;               ! Bump our local length.
;  1981          1961  3     op   = 7+.op;                ! Bump the pointer to the output
;  1982          1962  2     END;
;  1983          1963  2
;  1984          1964  2 CASE .format FROM form_text TO form_nonulls OF
;  1985          1965  2     SET
;  1986          1966  2     [form_text]:
;  1987          1967  2                 len = format_action_text (.in_siz, .in_ptr, .op);
;  1988          1968  2     [form_passall]:
;  1989          1969  2                 CH$MOVE(.in_siz, .in_ptr, .op); ! Move the input buffer
;  1990          1970  2     [form_dump, form_nonulls]:
;  1991          1971  2                 len = format_action_dump (.in_siz, .in_ptr, .op);
;  1992          1972  2     TES;
;  1993          1973  2
;  1994          1974  2 srh$put_output(.len, .output_buff);          ! and then print
;  1995          1975  2
;  1996          1976  2 RETURN;
;  1997          1977  2
;  1998          1978  1 END;


                                                .PSECT  $PLIT$,NOWRT,NOEXE,2

                00  00  00  09  4C  53  36  21  002A4 P.ACB:   .ASCII  \!6SL\<9><0><0><0>                    ;
                                    010E0005    002AC P.ACA:   .LONG   17694725                             ;
                                    00000000'   002B0          .ADDRESS P.ACB                           ;


                                                .PSECT  $CODE$,NOWRT,2

                        03E0    8F  BB 00000 FORMAT_N_PUT:
                                            PUSHR   #^M<R5,R6,R7,R8,R9>                                 ; 1901
                    57          52  7D 00004            MOVQ    R2, R7                                  ;
                    03  0000'   CF  E8 00007            BLBS    OUT_PRINTING, 1$                        ; 1932
                            0083    31 0000C            BRW     12$
                    01  0000'   CF  D1 0000F 1$:         CMPL    FORMAT, #1                              ; 1936
                                0A  12 00014            BNEQ    2$                                      ;
                    05  0000'   CF  E8 00016            BLBS    QUA_NUMBERS, 2$                         ;
                    52          57  7D 0001B            MOVQ    IN_SIZ, R2                              ; 1939
                                6F  11 0001E            BRB     11$                                     ;
                    59          57  D0 00020 2$:        MOVL    IN_SIZ, LEN                             ; 1946
                    56  0000'   CF  D0 00023            MOVL    OUTPUT_BUFF, OP                         ; 1947
                    2F  0000'   CF  E9 00028            BLBC    QUA_NUMBERS, 4$                         ; 1949
            0000'   CF          07  B0 0002D            MOVW    #7, TMP_DESC                            ; 1955
            0000'   CF          56  D0 00032            MOVL    OP, TMP_DESC+4                          ; 1956
                                54  DD 00037            PUSHL   LINE                                    ; 1957
                        0000'   CF  9F 00039            PUSHAB  TMP_DESC                                ;
                                7E  D4 0003D            CLRL    -(SP)                                   ;
                        0000'   CF  9F 0003F            PUSHAB  P.ACA                                   ;
        00000000G       00          04  FB 00043        CALLS   #4, SYS$FAO                             ;
                                09  50  E8 0004A        BLBS    STAT, 3$                                ;
                                    50  DD 0004D        PUSHL   STAT                                    ; 1959
        00000000G       00          01  FB 0004F        CALLS   #1, LIB$STOP                            ;
```

```
                         59          07  C0 00056 3$:     ADDL2   #7, LEN                         ; 1960
                         56          07  C0 00059         ADDL2   #7, OP                          ; 1961
               03        00   0000'  CF  CF 0005C 4$:     CASEL   FORMAT, #0, #3                  ; 1964
   0019      0019      0013        0008     00062 5$:     .WORD   6$-5$,-                         ;
                                                                  7$-5$,-                         ;
                                                                  8$-5$,-                         ;
                                                                  8$-5$                           ;
                         52          56  D0 0006A 6$:     MOVL    OP, R2                          ; 1967
                         54          57  7D 0006D         MOVQ    IN_SIZ, R4                      ;
                                  0000V  30 00070         BSBW    FORMAT_ACTION_TEXT              ;
                                     0F  11 00073         BRB     9$                              ;
               66        68          57  28 00075 7$:     MOVC3   IN_SIZ, (IN_PTR), (OP)          ; 1969
                                     0C  11 00079         BRB     10$                             ;
                         50          56  D0 0007B 8$:     MOVL    OP, R0                          ; 1971
                         52          57  7D 0007E         MOVQ    IN_SIZ, R2                      ;
                                  0000V  30 00081         BSBW    FORMAT_ACTION_DUMP              ;
                         59          50  D0 00084 9$:     MOVL    R0, LEN                         ;
                         53   0000'  CF  D0 00087 10$:    MOVL    OUTPUT_BUFF, R3                 ; 1974
                         52          59  D0 0008C         MOVL    LEN, R2                         ;
                                  0000V  30 0008F 11$:    BSBW    SRH$PUT_OUTPUT                  ;
                              03E0   8F  BA 00092 12$:    POPR    #^M<R5,R6,R7,R8,R9>             ; 1978
                                         05 00096         RSB                                     ;

; Routine Size:  151 bytes,    Routine Base:  $CODE$ + 0D4B
```

```
;  2000     1979  1 ROUTINE format_action_text (len, inp, outp) : JSB_FORACTTEX =
;  2001     1980  2 BEGIN
;  2002     1981  2
;  2003     1982  2 ! Define a table of substitute strings for control characters.  We define a byte vector of offsets to
;  2004     1983  2 ! ASCIC substitute strings.  A zero in the table means no substitution, an non-zero is the offset from
;  2005     1984  2 ! the base of the substitute strings.
;  2006     1985  2 !
;  2007     1986  2 PSECT
;  2008     1987  2     PLIT = $OWN$_CRF (WRITE);           ! Place string in crf along with table
;  2009     1988  2 BIND
;  2010     1989  2     table_base = UPLIT BYTE (0);
;  2011     1990  2 OWN_CRF
;  2012     1991  2     table : VECTOR [256, BYTE] PRESET (
;  2013     1992  2             [%x'00'] = (UPLIT BYTE (%asciC 'NUL') - table_base),
;  2014     1993  2             [%x'01'] = (UPLIT BYTE (%asciC 'SOH') - table_base),
;  2015     1994  2             [%x'02'] = (UPLIT BYTE (%asciC 'STX') - table_base),
;  2016     1995  2             [%x'03'] = (UPLIT BYTE (%asciC 'ETX') - table_base),
;  2017     1996  2             [%x'04'] = (UPLIT BYTE (%asciC 'EOT') - table_base),
;  2018     1997  2             [%x'05'] = (UPLIT BYTE (%asciC 'ENQ') - table_base),
;  2019     1998  2             [%x'06'] = (UPLIT BYTE (%asciC 'ACK') - table_base),
;  2020     1999  2             [%x'07'] = (UPLIT BYTE (%asciC 'BEL') - table_base),
;  2021     2000  2             [%x'08'] = (UPLIT BYTE (%asciC 'BS') - table_base),
;  2022     2001  2             [%x'0E'] = (UPLIT BYTE (%asciC 'SO') - table_base),
;  2023     2002  2             [%x'0F'] = (UPLIT BYTE (%asciC 'SI') - table_base),
;  2024     2003  2             [%x'10'] = (UPLIT BYTE (%asciC 'DLE') - table_base),
;  2025     2004  2             [%x'11'] = (UPLIT BYTE (%asciC 'DC1') - table_base),
;  2026     2005  2             [%x'12'] = (UPLIT BYTE (%asciC 'DC2') - table_base),
;  2027     2006  2             [%x'13'] = (UPLIT BYTE (%asciC 'DC3') - table_base),
;  2028     2007  2             [%x'14'] = (UPLIT BYTE (%asciC 'DC4') - table_base),
;  2029     2008  2             [%x'15'] = (UPLIT BYTE (%asciC 'NAK') - table_base),
;  2030     2009  2             [%x'16'] = (UPLIT BYTE (%asciC 'SYN') - table_base),
;  2031     2010  2             [%x'17'] = (UPLIT BYTE (%asciC 'ETB') - table_base),
;  2032     2011  2             [%x'18'] = (UPLIT BYTE (%asciC 'CAN') - table_base),
;  2033     2012  2             [%x'19'] = (UPLIT BYTE (%asciC 'EM') - table_base),
;  2034     2013  2             [%x'1A'] = (UPLIT BYTE (%asciC 'SUB') - table_base),
;  2035     2014  2             [%x'1B'] = (UPLIT BYTE (%asciC 'ESC') - table_base),
;  2036     2015  2             [%x'1C'] = (UPLIT BYTE (%asciC 'FS') - table_base),
;  2037     2016  2             [%x'1D'] = (UPLIT BYTE (%asciC 'GS') - table_base),
;  2038     2017  2             [%x'1E'] = (UPLIT BYTE (%asciC 'RS') - table_base),
;  2039     2018  2             [%x'1F'] = (UPLIT BYTE (%asciC 'US') - table_base),
;  2040     2019  2             [%x'7F'] = (UPLIT BYTE (%asciC 'DEL') - table_base),
;  2041     2020  2             [%x'80'] = (UPLIT BYTE (%asciC 'x80') - table_base),
;  2042     2021  2             [%x'81'] = (UPLIT BYTE (%asciC 'x81') - table_base),
;  2043     2022  2             [%x'82'] = (UPLIT BYTE (%asciC 'x82') - table_base),
;  2044     2023  2             [%x'83'] = (UPLIT BYTE (%asciC 'x83') - table_base),
;  2045     2024  2             [%x'84'] = (UPLIT BYTE (%asciC 'IND') - table_base),
;  2046     2025  2             [%x'85'] = (UPLIT BYTE (%asciC 'NEL') - table_base),
;  2047     2026  2             [%x'86'] = (UPLIT BYTE (%asciC 'SSA') - table_base),
;  2048     2027  2             [%x'C7'] = (UPLIT BYTE (%asciC 'ESA') - table_base),
;  2049     2028  2             [%x'88'] = (UPLIT BYTE (%asciC 'HTS') - table_base),
;  2050     2029  2             [%x'89'] = (UPLIT BYTE (%asciC 'HTJ') - table_base),
;  2051     2030  2             [%x'8A'] = (UPLIT BYTE (%asciC 'VTS') - table_base),
;  2052     2031  2             [%x'8B'] = (UPLIT BYTE (%asciC 'PLD') - table_base),
;  2053     2032  2             [%x'8C'] = (UPLIT BYTE (%asciC 'PLU') - table_base),
;  2054     2033  2             [%x'8D'] = (UPLIT BYTE (%asciC 'RI') - table_base),
;  2055     2034  2             [%x'8E'] = (UPLIT BYTE (%asciC 'SS2') - table_base),
;  2056     2035  2             [%x'8F'] = (UPLIT BYTE (%asciC 'SS3') - table_base),
```

```
;  2057          2036  2              [%x'90'] =  (UPLIT BYTE (%asclc 'DCS') - table_base),
;  2058          2037  2              [%x'91'] =  (UPLIT BYTE (%asclc 'PU1') - table_base),
;  2059          2038  2              [%x'92'] =  (UPLIT BYTE (%asclc 'PU2') - table_base),
;  2060          2039  2              [%x'93'] =  (UPLIT BYTE (%asclc 'STS') - table_base),
;  2061          2040  2              [%x'94'] =  (UPLIT BYTE (%asclc 'CCH') - table_base),
;  2062          2041  2              [%x'95'] =  (UPLIT BYTE (%asclc 'MW') - table_base),
;  2063          2042  2              [%x'96'] =  (UPLIT BYTE (%asclc 'SPA') - table_base),
;  2064          2043  2              [%x'97'] =  (UPLIT BYTE (%asclc 'EPA') - table_base),
;  2065          2044  2              [%x'98'] =  (UPLIT BYTE (%asclc 'x98') - table_base),
;  2066          2045  2              [%x'99'] =  (UPLIT BYTE (%asclc 'x99') - table_base),
;  2067          2046  2              [%x'9A'] =  (UPLIT BYTE (%asclc 'x9A') - table_base),
;  2068          2047  2              [%x'9B'] =  (UPLIT BYTE (%asclc 'CSI') - table_base),
;  2069          2048  2              [%x'9C'] =  (UPLIT BYTE (%asclc 'ST') - table_base),
;  2070          2049  2              [%x'9D'] =  (UPLIT BYTE (%asclc 'OSC') - table_base),
;  2071          2050  2              [%x'9E'] =  (UPLIT BYTE (%asclc 'PM') - table_base),
;  2072          2051  2              [%x'9F'] =  (UPLIT BYTE (%asclc 'APC') - table_base),
;  2073          2052  2              [%x'A0'] =  (UPLIT BYTE (%asclc 'xA0') - table_base),
;  2074          2053  2              [%x'FF'] =  (UPLIT BYTE (%asclc 'xFF') - table_base));
;  2075          2054  2          BIND
;  2076          2055  2              table_top = UPLIT BYTE (0);                 ! Hang a label on the end
;  2077          2056  2
;  2078          2057  2          ! Make sure that all of the strings total fewer than 256 bytes, so that byte offsets will work.  Note
;  2079          2058  2          ! that BLISS stores the above table like <table-base><ascic-strings><table><table-top> so that we must
;  2080          2059  2          ! include the length of the table itself.  Also test the assumption about storage format.  (We have
;  2081          2060  2          ! defined both OWN and PLIT to the same psect.)
;  2082          2061  2          !
;  2083          2062  2          $assume ((table_top-table_base) LEQ 511);
;  2084          2063  2          $assume ((table_base LSSA table) AND (table LSSA table_top));
;  2085          2064  2
;  2086          2065  2          REGISTER
;  2087          2066  2              ip,                                         ! Input pointer
;  2088          2067  2              op;                                         ! Output pointer
;  2089          2068  2
;  2090          2069  2          ip = .inp;
;  2091          2070  2          op = .outp;
;  2092          2071  2
;  2093          2072  2          DECR count FROM .len-1 TO 0                     ! Convert the controls
;  2094          2073  2          DO
;  2095          2074  3              BEGIN
;  2096          2075  3              REGISTER
;  2097          2076  3                  char,                                   ! Local character variable
;  2098          2077  3                  string : REF VECTOR [, BYTE];           ! Pointer to string for expansion
;  2099          2078  3
;  2100          2079  3              char = CH$RCHAR_A (ip);                     ! Get next character
;  2101          2080  3              IF (string = .table [.char]) NEQ 0          ! See if the substitution offset is zero
;  2102          2081  3              THEN
;  2103          2082  4                  BEGIN
;  2104          2083  4                  REGISTER
;  2105          2084  4                      len;
;  2106          2085  4                  string = .string + table_base;          ! Turn the offset into an address
;  2107          2086  4                  CH$WCHAR_A ('<', op);                   ! Start with the open bracket
;  2108          2087  4                  len = .string [0];                      ! Move the length to a register
;  2109          2088  4                  CH$MOVE (.len, string [1], .op);        ! Copy the ASCIC string
;  2110          2089  4                  op = .op+.len;                          ! Move the output pointer
;  2111          2090  4                  CH$WCHAR_A ('>', op);                   ! And finish with the close bracket
;  2112          2091  4                  END
;  2113          2092  3              ELSE                                        ! Offset is zero, just move the char
```

```
;  2114          2093  3          CH$WCHAR_A (.char, op);
;  2115          2094  2      END;
;  2116          2095  2
;  2117          2096  2 RETURN .op-.output_buff;                    ! Pass the new length back
;  2118          2097  1 END;


                                                        .PSECT  $OWN$_CRF,NOEXE,2

                                                    00  0032C P.ACC:   .BYTE   0
                                                4C  55  4E  03  0032D P.ACD:   .ASCII  <3>\NUL\
                                                48  4F  53  03  00331 P.ACE:   .ASCII  <3>\SOH\
                                                58  54  53  03  00335 P.ACF:   .ASCII  <3>\STX\
                                                58  54  45  03  00339 P.ACG:   .ASCII  <3>\ETX\
                                                54  4F  45  03  0033D P.ACH:   .ASCII  <3>\EOT\
                                                51  4E  45  03  00341 P.ACI:   .ASCII  <3>\ENQ\
                                                4B  43  41  03  00345 P.ACJ:   .ASCII  <3>\ACK\
                                                4C  45  42  03  00349 P.ACK:   .ASCII  <3>\BEL\
                                                    53  42  02  0034D P.ACL:   .ASCII  <2>\BS\
                                                    4F  53  02  00350 P.ACM:   .ASCII  <2>\SO\
                                                    49  53  02  00353 P.ACN:   .ASCII  <2>\SI\
                                                45  4C  44  03  00356 P.ACO:   .ASCII  <3>\DLE\
                                                31  43  44  03  0035A P.ACP:   .ASCII  <3>\DC1\
                                                32  43  44  03  0035E P.ACQ:   .ASCII  <3>\DC2\
                                                33  43  44  03  00362 P.ACR:   .ASCII  <3>\DC3\
                                                34  43  44  03  00366 P.ACS:   .ASCII  <3>\DC4\
                                                4B  41  4E  03  0036A P.ACT:   .ASCII  <3>\NAK\
                                                4E  59  53  03  0036E P.ACU:   .ASCII  <3>\SYN\
                                                42  54  45  03  00372 P.ACV:   .ASCII  <3>\ETB\
                                                4E  41  43  03  00376 P.ACW:   .ASCII  <3>\CAN\
                                                    4D  45  02  0037A P.ACX:   .ASCII  <2>\EM\
                                                42  55  53  03  0037D P.ACY:   .ASCII  <3>\SUB\
                                                43  53  45  03  00381 P.ACZ:   .ASCII  <3>\ESC\
                                                    53  46  02  00385 P.ADA:   .ASCII  <2>\FS\
                                                    53  47  02  00388 P.ADB:   .ASCII  <2>\GS\
                                                    53  52  02  0038B P.ADC:   .ASCII  <2>\RS\
                                                    53  55  02  0038E P.ADD:   .ASCII  <2>\US\
                                                4C  45  44  03  00391 P.ADE:   .ASCII  <3>\DEL\
                                                30  38  78  03  00395 P.ADF:   .ASCII  <3>\x80\
                                                31  38  78  03  00399 P.ADG:   .ASCII  <3>\x81\
                                                32  38  78  03  0039D P.ADH:   .ASCII  <3>\x82\
                                                33  38  78  03  003A1 P.ADI:   .ASCII  <3>\x83\
                                                44  4E  49  03  003A5 P.ADJ:   .ASCII  <3>\IND\
                                                4C  45  4E  03  003A9 P.ADK:   .ASCII  <3>\NEL\
                                                41  53  53  03  003AD P.ADL:   .ASCII  <3>\SSA\
                                                41  53  45  03  003B1 P.ADM:   .ASCII  <3>\ESA\
                                                53  54  48  03  003B5 P.ADN:   .ASCII  <3>\HTS\
                                                4A  54  48  03  003B9 P.ADO:   .ASCII  <3>\HTJ\
                                                53  54  56  03  003BD P.ADP:   .ASCII  <3>\VTS\
                                                44  4C  50  03  003C1 P.ADQ:   .ASCII  <3>\PLD\
                                                55  4C  50  03  003C5 P.ADR:   .ASCII  <3>\PLU\
                                                    49  52  02  003C9 P.ADS:   .ASCII  <2>\RI\
                                                32  53  53  03  003CC P.ADT:   .ASCII  <3>\SS2\
                                                33  53  53  03  003D0 P.ADU:   .ASCII  <3>\SS3\
                                                53  43  44  03  003D4 P.ADV:   .ASCII  <3>\DCS\
                                                31  55  50  03  003D8 P.ADW:   .ASCII  <3>\PU1\
```

```
                                                32  55  50  03  003DC P.ADX:   .ASCII  <3>\PU2\                                ;
                                                53  54  53  03  003E0 P.ADY:   .ASCII  <3>\STS\                               ;
                                                48  43  43  03  003E4 P.ADZ:   .ASCII  <3>\CCH\                               ;
                                                    57  4D  02  003E8 P.AEA:   .ASCII  <2>\MW\                                ;
                                                41  50  53  03  003EB P.AEB:   .ASCII  <3>\SPA\                               ;
                                                41  50  45  03  003EF P.AEC:   .ASCII  <3>\EPA\                               ;
                                                38  39  78  03  003F3 P.AED:   .ASCII  <3>\x98\                              ;
                                                39  39  78  03  003F7 P.AEE:   .ASCII  <3>\x99\                              ;
                                                41  39  78  03  003FB P.AEF:   .ASCII  <3>\x9A\                              ;
                                                49  53  43  03  003FF P.AEG:   .ASCII  <3>\CSI\                              ;
                                                    54  53  02  00403 P.AEH:   .ASCII  <2>\ST\                               ;
                                                43  53  4F  03  00406 P.AEI:   .ASCII  <3>\OSC\                              ;
                                                    4D  50  02  0040A P.AEJ:   .ASCII  <2>\PM\                               ;
                                                43  50  41  03  0040D P.AEK:   .ASCII  <3>\APC\                              ;
                                                30  41  78  03  00411 P.AEL:   .ASCII  <3>\xA0\                              ;
                                                46  46  78  03  00415 P.AEM:   .ASCII  <3>\xFF\                              ;
                                                                00419          .BLKB   3                                     ;
                            21  1D  19  15  11  0D  09  05  01  0041C TABLE:   .BYTE   1, 5, 9, 13, 17, 21, 25, 29, 33       ;
                                                        00#     00425          .BYTE   0[5]                                  ;
59  55  51  4E  4A  46  42  3E  3A  36  32  2E  2A  27  24  0042A              .BYTE   36, 39, 42, 46, 50, 54, 58, 62, 66, 70, -  ;
                                        62  5F  5C  00439                              74, 78, 81, 85, 89, 92, 95, 98        ;
                                                        00#     0043C          .BYTE   0[95]                                 ;
9D  99  95  91  8D  89  85  81  7D  79  75  71  6D  69  65  0049B              .BYTE   101, 105, 109, 113, 117, 121, 125, -127, - ;
D7  D3  CF  CB  C7  C3  BF  BC  B8  B4  B0  AC  A8  A4  A0  004AA                      -123, -119, -115, -111, -107, -103, -99, -  ;
                                            E5  E1  DE  DA  004B9                      -96, -92, -88, -84, -80, -76, -72, -68, -  ;
                                                                                       -65, -61, -57, -53, -49, -45, -41, -38, -  ;
                                                                                       -34, -31, -27                              ;
                                                        00#     004BD          .BYTE   0[94]                                 ;
                                                        E9      0051B          .BYTE   -23                                   ;
                                                        00      0051C P.AEN:   .BYTE   0                                     ;

                                                TABLE_BASE=            P.ACC
                                                TABLE_TOP=             P.AEN


                                                                       .PSECT  $CODE$,NOWRT,2

                    7E              58  7D 00000 FORMAT_ACTION_TEXT:
                                                        MOVQ    R8, -(SP)                                                    ; 1979
                    7E              56  7D 00003                MOVQ    R6, -(SP)                                            ;
                    56              55  D0 00006                MOVL    INP, IP                                              ; 2069
                    57              52  D0 00009                MOVL    OUTP, OP                                             ; 2070
                    59              54  D0 0000C                MOVL    LEN, COUNT                                           ; 2072
                                    29  11 0000F                BRB     4$                                                   ;
                    50              86  9A 00011 1$:            MOVZBL  (IP)+, CHAR                                          ; 2079
                    51      0000'CF 40  9A 00014                MOVZBL  TABLE[CHAR], STRING                                  ; 2080
                                    19  13 0001A                BEQL    2$                                                   ;
                    51      0000'CF 41  9E 0001C                MOVAB   TABLE_BASE[STRING], STRING                           ; 2085
                    87              3C  90 00022                MOVB    #60, (OP)+                                           ; 2086
                    58              61  9A 00025                MOVZBL  (STRING), LEN                                        ; 2087
67          01      A1              58  28 00028                MOVC3   LEN, 1(STRING), (OP)                                 ; 2088
                    57              58  C0 0002D                ADDL2   LEN, OP                                              ; 2089
                    67              3E  90 00030                MOVB    #62, (OP)                                            ; 2090
                                    03  11 00033                BRB     3$                                                   ; 2093
                    67              50  90 00035 2$:            MOVB    CHAR, (OP)                                           ;
                                    57  D6 00038 3$:            INCL    OP                                                   ; 2090
                    D4              59  F4 0003A 4$:            SOBGEQ  COUNT, 1$                                            ; 2072
```

```
                57      0000'  CF  C2 0003D          SUBL2   OUTPUT_BUFF, R7                 ; 2096
                50             57  D0 00042          MOVL    R7, R0
                       03C0    8F  BA 00045          POPR    #^M<R6,R7,R8,R9>               ; 2097
                               05  00049          RSB
;
; Routine Size:  74 bytes,    Routine Base:  $CODE$ + 0DE2
```

```
;  2120     2098  1 ROUTINE format_action_dump (len, inp, outp) : JSB_FORACTDUM =
;  2121     2099  2 BEGIN
;  2122     2100  2
;  2123     2101  2 ! Define a table of substitute strings for control characters.  We define a byte vector of offsets to
;  2124     2102  2 ! ASCIC substitute strings.  A zero in the table means no substitution, an non-zero is the offset from
;  2125     2103  2 ! the base of the substitute strings.
;  2126     2104  2 !
;  2127     2105  2 PSECT
;  2128     2106  2     PLIT = $OWN$_CRF (WRITE);          ! Place string in crf along with table
;  2129     2107  2 BIND
;  2130     2108  2     table_base = UPLIT BYTE (0);
;  2131     2109  2 OWN_CRF
;  2132     2110  2     table : VECTOR [256, BYTE] PRESET (
;  2133     2111  2             [%x'00'] = (UPLIT BYTE (%ascic 'NUL') - table_base),
;  2134     2112  2             [%x'01'] = (UPLIT BYTE (%ascic 'SOH') - table_base),
;  2135     2113  2             [%x'02'] = (UPLIT BYTE (%ascic 'STX') - table_base),
;  2136     2114  2             [%x'03'] = (UPLIT BYTE (%ascic 'ETX') - table_base),
;  2137     2115  2             [%x'04'] = (UPLIT BYTE (%ascic 'EOT') - table_base),
;  2138     2116  2             [%x'05'] = (UPLIT BYTE (%ascic 'ENQ') - table_base),
;  2139     2117  2             [%x'06'] = (UPLIT BYTE (%ascic 'ACK') - table_base),
;  2140     2118  2             [%x'07'] = (UPLIT BYTE (%ascic 'BEL') - table_base),
;  2141     2119  2             [%x'08'] = (UPLIT BYTE (%ascic 'BS') - table_base),
;  2142     2120  2             [%x'09'] = (UPLIT BYTE (%ascic 'HT') - table_base),
;  2143     2121  2             [%x'0A'] = (UPLIT BYTE (%ascic 'CR') - table_base),
;  2144     2122  2             [%x'0B'] = (UPLIT BYTE (%ascic 'LF') - table_base),
;  2145     2123  2             [%x'0C'] = (UPLIT BYTE (%ascic 'VT') - table_base),
;  2146     2124  2             [%x'0D'] = (UPLIT BYTE (%ascic 'FF') - table_base),
;  2147     2125  2             [%x'0E'] = (UPLIT BYTE (%ascic 'SO') - table_base),
;  2148     2126  2             [%x'0F'] = (UPLIT BYTE (%ascic 'SI') - table_base),
;  2149     2127  2             [%x'10'] = (UPLIT BYTE (%ascic 'DLE') - table_base),
;  2150     2128  2             [%x'11'] = (UPLIT BYTE (%ascic 'DC1') - table_base),
;  2151     2129  2             [%x'12'] = (UPLIT BYTE (%ascic 'DC2') - table_base),
;  2152     2130  2             [%x'13'] = (UPLIT BYTE (%ascic 'DC3') - table_base),
;  2153     2131  2             [%x'14'] = (UPLIT BYTE (%ascic 'DC4') - table_base),
;  2154     2132  2             [%x'15'] = (UPLIT BYTE (%ascic 'NAK') - table_base),
;  2155     2133  2             [%x'16'] = (UPLIT BYTE (%ascic 'SYN') - table_base),
;  2156     2134  2             [%x'17'] = (UPLIT BYTE (%ascic 'ETB') - table_base),
;  2157     2135  2             [%x'18'] = (UPLIT BYTE (%ascic 'CAN') - table_base),
;  2158     2136  2             [%x'19'] = (UPLIT BYTE (%ascic 'EM') - table_base),
;  2159     2137  2             [%x'1A'] = (UPLIT BYTE (%ascic 'SUB') - table_base),
;  2160     2138  2             [%x'1B'] = (UPLIT BYTE (%ascic 'ESC') - table_base),
;  2161     2139  2             [%x'1C'] = (UPLIT BYTE (%ascic 'FS') - table_base),
;  2162     2140  2             [%x'1D'] = (UPLIT BYTE (%ascic 'GS') - table_base),
;  2163     2141  2             [%x'1E'] = (UPLIT BYTE (%ascic 'RS') - table_base),
;  2164     2142  2             [%x'1F'] = (UPLIT BYTE (%ascic 'US') - table_base),
;  2165     2143  2             [%x'7F'] = (UPLIT BYTE (%ascic 'DEL') - table_base),
;  2166     2144  2             [%x'80'] = (UPLIT BYTE (%ascic 'x80') - table_base),
;  2167     2145  2             [%x'81'] = (UPLIT BYTE (%ascic 'x81') - table_base),
;  2168     2146  2             [%x'82'] = (UPLIT BYTE (%ascic 'x82') - table_base),
;  2169     2147  2             [%x'83'] = (UPLIT BYTE (%ascic 'x83') - table_base),
;  2170     2148  2             [%x'84'] = (UPLIT BYTE (%ascic 'IND') - table_base),
;  2171     2149  2             [%x'85'] = (UPLIT BYTE (%ascic 'NEL') - table_base),
;  2172     2150  2             [%x'86'] = (UPLIT BYTE (%ascic 'SSA') - table_base),
;  2173     2151  2             [%x'87'] = (UPLIT BYTE (%ascic 'ESA') - table_base),
;  2174     2152  2             [%x'88'] = (UPLIT BYTE (%ascic 'HTS') - table_base),
;  2175     2153  2             [%x'89'] = (UPLIT BYTE (%ascic 'HTJ') - table_base),
;  2176     2154  2             [%x'8A'] = (UPLIT BYTE (%ascic 'VTS') - table_base),
```

```
;  2177     2155  2                [%x'8B'] =  (UPLIT BYTE (%ascic 'PLD') - table_base),
;  2178     2156  2                [%x'8C'] =  (UPLIT BYTE (%ascic 'PLU') - table_base),
;  2179     2157  2                [%x'8D'] =  (UPLIT BYTE (%ascic 'RI') - table_base),
;  2180     2158  2                [%x'8E'] =  (UPLIT BYTE (%ascic 'SS2') - table_base),
;  2181     2159  2                [%x'8F'] =  (UPLIT BYTE (%ascic 'SS3') - table_base),
;  2182     2160  2                [%x'90'] =  (UPLIT BYTE (%ascic 'DCS') - table_base),
;  2183     2161  2                [%x'91'] =  (UPLIT BYTE (%ascic 'PU1') - table_base),
;  2184     2162  2                [%x'92'] =  (UPLIT BYTE (%ascic 'PU2') - table_base),
;  2185     2163  2                [%x'93'] =  (UPLIT BYTE (%ascic 'STS') - table_base),
;  2186     2164  2                [%x'94'] =  (UPLIT BYTE (%ascic 'CCH') - table_base),
;  2187     2165  2                [%x'95'] =  (UPLIT BYTE (%ascic 'MW') - table_base),
;  2188     2166  2                [%x'96'] =  (UPLIT BYTE (%ascic 'SPA') - table_base),
;  2189     2167  2                [%x'97'] =  (UPLIT BYTE (%ascic 'EPA') - table_base),
;  2190     2168  2                [%x'98'] =  (UPLIT BYTE (%ascic 'x98') - table_base),
;  2191     2169  2                [%x'99'] =  (UPLIT BYTE (%ascic 'x99') - table_base),
;  2192     2170  2                [%x'9A'] =  (UPLIT BYTE (%ascic 'x9A') - table_base),
;  2193     2171  2                [%x'9B'] =  (UPLIT BYTE (%ascic 'CSI') - table_base),
;  2194     2172  2                [%x'9C'] =  (UPLIT BYTE (%ascic 'ST') - table_base),
;  2195     2173  2                [%x'9D'] =  (UPLIT BYTE (%ascic 'OSC') - table_base),
;  2196     2174  2                [%x'9E'] =  (UPLIT BYTE (%ascic 'PM') - table_base),
;  2197     2175  2                [%x'9F'] =  (UPLIT BYTE (%ascic 'APC') - table_base),
;  2198     2176  2                [%x'A0'] =  (UPLIT BYTE (%ascic 'xA0') - table_base),
;  2199     2177  2                [%x'FF'] =  (UPLIT BYTE (%ascic 'xFF') - table_base);
;  2200     2178  2    BIND
;  2201     2179  2        table_top = UPLIT BYTE (0);                     ! Hang a label on the end
;  2202     2180  2
;  2203     2181  2    ! Make sure that all of the strings total fewer than 256 bytes, so that byte offsets will work.  Note
;  2204     2182  2    ! that BLISS stores the above table like <table-base><ascic-strings><table><table-top> so that we must
;  2205     2183  2    ! include the length of the table itself.  Also test the assumption about storage format.  (We have
;  2206     2184  2    ! defined both OWN and PLIT to the same psect.)
;  2207     2185  2    !
;  2208     2186  2    $assume ((table_top-table_base) LEQ 511);
;  2209     2187  2    $assume ((table_base LSSA table) AND (table LSSA table_top));
;  2210     2188  2
;  2211     2189  2    REGISTER
;  2212     2190  2        ip,                                             ! Input pointer
;  2213     2191  2        op;                                             ! Output pointer
;  2214     2192  2
;  2215     2193  2    ip = .inp;
;  2216     2194  2    op = .outp;
;  2217     2195  2
;  2218     2196  2    DECR count FROM .len-1 TO 0                         ! Convert the controls
;  2219     2197  2    DO
;  2220     2198  3        BEGIN
;  2221     2199  3        REGISTER
;  2222     2200  3            char,                                       ! Local character variable
;  2223     2201  3            string : REF VECTOR [, BYTE];               ! Pointer to string for expansion
;  2224     2202  3
;  2225     2203  3        char = CH$RCHAR_A (ip);                         ! Get next character
;  2226     2204  3        IF NOT ((.char EQL 0)                           ! Skip if character is zero
;  2227     2205  4                AND (.format EQL form_nonulls))         !  and we are skipping nulls
;  2228     2206  3        THEN
;  2229     2207  4            BEGIN
;  2230     2208  4            IF (string = .table [.char]) NEQ 0          ! See if the substitution offset is zero
;  2231     2209  4            THEN
;  2232     2210  5                BEGIN
;  2233     2211  5                REGISTER
```

```
;  2234     2212  5                 len;
;  2235     2213  5             string = .string + table_base;      ! Turn the offset into an address
;  2236     2214  5             CH$WCHAR_A ('<', op);               ! Start with the open bracket
;  2237     2215  5             len = .string [0];                  ! Move the length to a register
;  2238     2216  5             CH$MOVE (.len, string [1], .op);    ! Copy the ASCIC string
;  2239     2217  5             op = .op+.len;                      ! Move the output pointer
;  2240     2218  5             CH$WCHAR_A ('>', op);               ! And finish with the close bracket
;  2241     2219  5             END
;  2242     2220  4         ELSE                                    ! Offset is zero, just move the char
;  2243     2221  4             CH$WCHAR_A (.char, op);
;  2244     2222  3         END;
;  2245     2223  2     END;
;  2246     2224  2
;  2247     2225  2 RETURN .op-.output_buff;                       ! Pass the new length back
;  2248     2226  1 END;


                                                .PSECT  $OWN$_CRF,NOEXE,2

                                        00  0051D P.AEO:  .BYTE   0
                                4C  55  4E  03  0051E P.AEP:  .ASCII  <3>\NUL\
                                48  4F  53  03  00522 P.AEQ:  .ASCII  <3>\SOH\
                                58  54  53  03  00526 P.AER:  .ASCII  <3>\STX\
                                58  54  45  03  0052A P.AES:  .ASCII  <3>\ETX\
                                54  4F  45  03  0052E P.AET:  .ASCII  <3>\EOT\
                                51  4E  45  03  00532 P.AEU:  .ASCII  <3>\ENQ\
                                48  43  41  03  00536 P.AEV:  .ASCII  <3>\ACK\
                                4C  45  42  03  0053A P.AEW:  .ASCII  <3>\BEL\
                                    53  42  02  0053E P.AEX:  .ASCII  <2>\BS\
                                    54  48  02  00541 P.AEY:  .ASCII  <2>\HT\
                                    52  43  02  00544 P.AEZ:  .ASCII  <2>\CR\
                                    46  4C  02  00547 P.AFA:  .ASCII  <2>\LF\
                                    54  56  02  0054A P.AFB:  .ASCII  <2>\VT\
                                    46  46  02  0054D P.AFC:  .ASCII  <2>\FF\
                                    4F  53  02  00550 P.AFD:  .ASCII  <2>\SO\
                                    49  53  02  00553 P.AFE:  .ASCII  <2>\SI\
                                45  4C  44  03  00556 P.AFF:  .ASCII  <3>\DLE\
                                31  43  44  03  0055A P.AFG:  .ASCII  <3>\DC1\
                                32  43  44  03  0055E P.AFH:  .ASCII  <3>\DC2\
                                33  43  44  03  00562 P.AFI:  .ASCII  <3>\DC3\
                                34  43  44  03  00566 P.AFJ:  .ASCII  <3>\DC4\
                                4B  41  4E  03  0056A P.AFK:  .ASCII  <3>\NAK\
                                4E  59  53  03  0056E P.AFL:  .ASCII  <3>\SYN\
                                42  54  45  03  00572 P.AFM:  .ASCII  <3>\ETB\
                                4E  41  43  03  00576 P.AFN:  .ASCII  <3>\CAN\
                                    4D  45  02  0057A P.AFO:  .ASCII  <2>\EM\
                                42  55  53  03  0057D P.AFP:  .ASCII  <3>\SUB\
                                43  53  45  03  00581 P.AFQ:  .ASCII  <3>\ESC\
                                    53  46  02  00585 P.AFR:  .ASCII  <2>\FS\
                                    53  47  02  00588 P.AFS:  .ASCII  <2>\GS\
                                    53  52  02  0058B P.AFT:  .ASCII  <2>\RS\
                                    53  55  02  0058E P.AFU:  .ASCII  <2>\US\
                                4C  45  44  03  00591 P.AFV:  .ASCII  <3>\DEL\
                                30  38  78  03  00595 P.AFW:  .ASCII  <3>\x80\
                                31  38  78  03  00599 P.AFX:  .ASCII  <3>\x81\
                                32  38  78  03  0059D P.AFY:  .ASCII  <3>\x82\
```

```
                                33  38  78  03  005A1 P.AFZ:   .ASCII   <3>\x83\
                                44  4E  49  03  005A5 P.AGA:   .ASCII   <3>\IND\
                                4C  45  4E  03  005A9 P.AGB:   .ASCII   <3>\NEL\
                                41  53  53  03  005AD P.AGC:   .ASCII   <3>\SSA\
                                41  53  45  03  005B1 P.AGD:   .ASCII   <3>\ESA\
                                53  54  48  03  005B5 P.AGE:   .ASCII   <3>\HTS\
                                4A  54  48  03  005B9 P.AGF:   .ASCII   <3>\HTJ\
                                53  54  56  03  005BD P.AGG:   .ASCII   <3>\VTS\
                                44  4C  50  03  005C1 P.AGH:   .ASCII   <3>\PLD\
                                55  4C  50  03  005C5 P.AGI:   .ASCII   <3>\PLU\
                                    49  52  02  005C9 P.AGJ:   .ASCII   <2>\RI\
                                32  53  53  03  005CC P.AGK:   .ASCII   <3>\SS2\
                                33  53  53  03  005D0 P.AGL:   .ASCII   <3>\SS3\
                                53  43  44  03  005D4 P.AGM:   .ASCII   <3>\DCS\
                                31  55  50  03  005D8 P.AGN:   .ASCII   <3>\PU1\
                                32  55  50  03  005DC P.AGO:   .ASCII   <3>\PU2\
                                53  54  53  03  005E0 P.AGP:   .ASCII   <3>\STS\
                                48  43  43  03  005E4 P.AGQ:   .ASCII   <3>\CCH\
                                    57  4D  02  005E8 P.AGR:   .ASCII   <2>\MW\
                                41  50  53  03  005EB P.AGS:   .ASCII   <3>\SPA\
                                41  50  45  03  005EF P.AGT:   .ASCII   <3>\EPA\
                                38  39  78  03  005F3 P.AGU:   .ASCII   <3>\x98\
                                39  39  78  03  005F7 P.AGV:   .ASCII   <3>\x99\
                                41  39  78  03  005FB P.AGW:   .ASCII   <3>\x9A\
                                49  53  43  03  005FF P.AGX:   .ASCII   <3>\CSI\
                                    54  53  02  00603 P.AGY:   .ASCII   <2>\ST\
                                43  53  4F  03  00606 P.AGZ:   .ASCII   <3>\OSC\
                                    4D  50  02  0060A P.AHA:   .ASCII   <2>\PM\
                                43  50  41  03  0060D P.AHB:   .ASCII   <3>\APC\
                                30  41  78  03  00611 P.AHC:   .ASCII   <3>\xA0\
                                46  46  78  03  00615 P.AHD:   .ASCII   <3>\xFF\
                                                    00619       .BLKB    3
33  30  2D  2A  27  24  21  1D  19  15  11  0D  09  05  01  0061C TABLE:   .BYTE    1, 5, 9, 13, 17, 21, 25, 29, 33, 36, 39, -
6B  68  64  60  5D  59  55  51  4D  49  45  41  3D  39  36  0062B                   42, 45, 48, 51, 54, 57, 61, 65, 69, 73, -
                                            71  6E  0063A                   77, 81, 85, 89, 93, 96, 100, 104, 107, -
                                                                            110, 113
                                                    00#  0063C         .BYTE    0[95]
AC  A8  A4  A0  9C  98  94  90  8C  88  84  80  7C  78  74  0069B         .BYTE    116, 120, 124, -128, -124, -120, -116, -
E6  E2  DE  DA  D6  D2  CE  CB  C7  C3  BF  BB  B7  B3  AF  006AA                   -112, -108, -104, -100, -96, -92, -88, -
                                F4  F0  ED  E9  006B9                   -84, -81, -77, -73, -69, -65, -61, -57, -
                                                                            -53, -50, -46, -42, -38, -34, -30, -26, -
                                                                            -23, -19, -16, -12
                                                    00#  006BD         .BYTE    0[94]
                                                    F8   0071B         .BYTE    -8
                                                    00   0071C P.AHE:   .BYTE    0

                                                TABLE_BASE=         P.AE0
                                                TABLE_TOP=          P.AHE

                                                                .PSECT  $CODE$,NOWRT,2

                        7E              58  7D 00000 FORMAT_ACTION_DUMP:
                                                        MOVQ    R8, -(SP)                       ; 2098
                        7E              56  7D 00003            MOVQ    R6, -(SP)
                        56              53  D0 00006            MOVL    INP, IP                 ; 2193
                        57              50  D0 00009            MOVL    OUTP, OP                ; 2194
```

```
                        59              52  D0 0000C        MOVL    LEN, COUNT                      ; 2196
                                        32  11 0000F        BRB     5$                              ;
                        50              86  9A 00011 1$:    MOVZBL  (IP)+, CHAR                     ; 2203
                                        07  12 00014        BNEQ    2$                              ; 2204
                        03      0000'   CF  D1 00016        CMPL    FORMAT, #3                      ; 2205
                                        26  13 0001B        BEQL    5$                              ;
                        51      0000'CF40  9A 0001D 2$:     MOVZBL  TABLE[CHAR], STRING             ; 2208
                                        19  13 00023        BEQL    3$                              ;
                        51      0000'CF41  9E 00025        MOVAB   TABLE_BASE[STRING], STRING       ; 2213
                        87              3C  90 0002B        MOVB    #60, (OP)+                      ; 2214
                        58              61  9A 0002E        MOVZBL  (STRING), LEN                   ; 2215
                    67      01      A1      28 00031        MOVC3   LEN, 1(STRING), (OP)            ; 2216
                        57              58  C0 00036        ADDL2   LEN, OP                         ; 2217
                        67              3E  90 00039        MOVB    #62, (OP)                       ; 2218
                                        03  11 0003C        BRB     4$                              ; 2221
                        67              50  90 0003E 3$:    MOVB    CHAR, (OP)                      ;
                                        57  D6 00041 4$:    INCL    OP                              ; 2218
                        CB              59  F4 00043 5$:    SOBGEQ  COUNT, 1$                       ; 2196
                        57      0000'   CF  C2 00046        SUBL2   OUTPUT_BUFF, R7                 ; 2225
                        50              57  D0 0004B        MOVL    R7, R0                          ;
                                03C0    8F  BA 0004E        POPR    #^M<R6,R7,R8,R9>                ; 2226
                                        05  00052        RSB                                     ;

; Routine Size:  83 bytes,    Routine Base:  $CODE$ + 0E2C
```

```
ROUTINE srh$put_output(length, buffer) : NOVALUE JSB_PUTOUT =
!++
! Functional description
!
!       Routine to write records to the output file
!
! Input parameters
!
!       length = length of string to output
!       buffer = address of string to output
!
!--
BEGIN

ROUTINE put (len, buf) : NOVALUE =
BEGIN

LOCAL
    status;

outrab [rab$w_rsz] = .len;
outrab [rab$l_rbf] = .buf;

IF NOT (status = $PUT(RAB = outrab))
THEN
    BEGIN

    !+
    ! if the error is due to a record which was too long, shorten the
    ! request and try again
    !-
    IF (
        (.max_rec GTR 80)            ! we aren't pretty short already
        AND
        (
            (.status EQL RMS$_RSZ)  ! error is rec too big (get from tape)
            OR
            (
                (.status EQL RMS$_SYS)      ! terminal maxbuf error
              AND
                (.outrab[rab$l_stv] EQL SS$_EXQUOTA)
            )
        )
       )
    THEN
        BEGIN
        max_rec = (.len * 90) / 100;    ! try with rec 90% as long
        put (.max_rec, .buf);
        RETURN;
        END
    ELSE
        file_error (srh$_writeerr, .status, outfab, .outrab[rab$l_stv]);
    END;

%IF switch_statistics
%THEN
    stat_totput = .stat_totput+1; ! Count this line
```

```
; 2307          2284  3 %FI
; 2308          2285  3
; 2309          2286  3 RETURN;
; 2310          2287  2 END;


                                                          .EXTRN  SYS$PUT

                                      000C 00000 PUT:     .WORD   Save R2,R3                              ; 2241
                  53      0000'   CF   9E 00002           MOVAB   MAX_REC, R3                             ;
                  52      0000'   CF   9E 00007           MOVAB   OUTRAB+12, R2                           ;
             16   A2         04   AC   B0 0000C           MOVW    LEN, OUTRAB+34                          ; 2247
             1C   A2         08   AC   D0 00011           MOVL    BUF, OUTRAB+40                          ; 2248
                             F4   A2   9F 00016           PUSHAB  OUTRAB                                  ; 2250
        00000000G 00              01   FB 00019           CALLS   #1, SYS$PUT                             ;
                  4D              50   E8 00020           BLBS    STATUS, 3$                              ;
        00000050  8F              63   D1 00023           CMPL    MAX_REC, #80                            ; 2259
                  32              15 0002A                BLEQ    2$                                      ;
        000186A4  8F              50   D1 0002C           CMPL    STATUS, #100004                         ; 2262
                  0E              13 00033                BEQL    1$                                      ;
        0001C10C  8F              50   D1 00035           CMPL    STATUS, #114956                         ; 2265
                  20              12 0003C                BNEQ    2$                                      ;
                  1C              62   D1 0003E           CMPL    OUTRAB+12, #28                          ; 2267
                  18              12 00041                BNEQ    2$                                      ;
     51      04   AC 0000005A     8F   C5 00043 1$:       MULL3   #90, LEN, R1                            ; 2273
     63           51 00000064     8F   C7 0004C           DIVL3   #100, R1, MAX_REC                       ;
                             08   AC   DD 00054           PUSHL   BUF                                     ; 2274
                                  63   DD 00057           PUSHL   MAX_REC                                 ;
             A3   AF              02   FB 00059           CALLS   #2, PUT                                 ;
                                  04 0005D                RET                                             ; 2272
                                  62   DD 0005E 2$:       PUSHL   OUTRAB+12                               ; 2278
                             A4   A2   9F 00060           PUSHAB  OUTFAB                                  ;
                                  50   DD 00063           PUSHL   STATUS                                  ;
                       00D710D4   8F   DD 00065           PUSHL   #14094548                               ;
           FDB7   CF              04   FB 0006B           CALLS   #4, FILE_ERROR                          ;
                           0CFC   C3   D6 00070 3$:       INCL    STAT_TOTPUT                             ; 2283
                                  04 00074                RET                                             ; 2287

; Routine Size:  117 bytes,    Routine Base:  $CODE$ + 0E7F


; 2311          2288  2
; 2312          2289  2 IF .out_file_open
; 2313          2290  2 THEN
; 2314          2291  3         BEGIN
; 2315          2292  3         LOCAL
; 2316          2293  3             len,                          ! Local length
; 2317          2294  3             ptr,                          ! Pointer to current part of buffer.
; 2318          2295  3             printed;                      ! Flag that first part printed
; 2319          2296  3
; 2320          2297  3         len = .length;                    ! Copy inputs to local
; 2321          2298  3         ptr = .buffer;
; 2322          2299  3         printed = false;
; 2323          2300  3         !
; 2324          2301  3         ! Print the record.  We must allow for a segmented put if the
; 2325          2302  3         ! size of the record is larger than the MRS of the output file.
```

```
;  2326        2303  3          !
;  2327        2304  3          DO
;  2328        2305  4              BEGIN
;  2329        2306  4              IF .printed
;  2330        2307  4              THEN
;  2331        2308  4                  put (11, UPLIT BYTE('(continued)'));
;  2332        2309  4              put (MIN(.len, .max_rec), .ptr);
;  2333        2310  4              len = .len - .max_rec;
;  2334        2311  4              ptr = .ptr + .max_rec;
;  2335        2312  4              printed = true;
;  2336        2313  4              END
;  2337        2314  3          UNTIL .len LEQ 0;
;  2338        2315  2          END;
;  2339        2316  1 END;


                                                        .PSECT  $PLIT$,NOWRT,NOEXE,2

                29 64 65 75 6E 69 74 6E 6F 63 28  002B4 P.AHF:  .ASCII  \(continued)\                          ;


                                                        .PSECT  $CODE$,NOWRT,2

                                                  54    DD 00000 SRH$PUT_OUTPUT:
                                                              PUSHL   R4                                        ; 2227
                                      3A     0000'    CF    E9 00002         BLBC    OUT_FILE_OPEN, 4$          ; 2289
                                      54              53    D0 00007         MOVL    BUFFER, PTR                ; 2298
                                                      53    D4 0000A         CLRL    PRINTED                    ; 2299
                                      0B              53    E9 0000C 1$:     BLBC    PRINTED, 2$                ; 2306
                                             0000'    CF    9F 0000F         PUSHAB  P.AHF                      ; 2308
                                                      0B    DD 00013         PUSHL   #11                        ;
                                FF71  CF              02    FB 00015         CALLS   #2, PUT                    ;
                                                      54    DD 0001A 2$:     PUSHL   PTR                        ; 2309
                                      50       0000'  CF    D0 0001C         MOVL    MAX_REC, R0                ;
                                                      52    DD 00021         PUSHL   LEN                        ;
                                      50              6E    D1 00023         CMPL    (SP), R0                   ;
                                                      03    15 00026         BLEQ    3$                         ;
                                      6E              50    D0 00028         MOVL    R0, (SP)                   ;
                                FF5B  CF              02    FB 0002B 3$:     CALLS   #2, PUT                    ;
                                      52       0000'  CF    C2 00030         SUBL2   MAX_REC, LEN               ; 2310
                                      54       0000'  CF    C0 00035         ADDL2   MAX_REC, PTR               ; 2311
                                      53              01    D0 0003A         MOVL    #1, PRINTED                ; 2312
                                                      52    D5 0003D         TSTL    LEN                        ; 2314
                                                      CB    14 0003F         BGTR    1$                         ;
                                                      10    BA 00041 4$:     POPR    #^M<R4>                    ; 2316
                                                            05 00043         RSB                                ;

; Routine Size:  68 bytes,    Routine Base:  $CODE$ + 0EF4
```

```
; 2341          2317  1 END
; 2342          2318  0 ELUDOM



                                                        .EXTRN  LIB$SIGNAL, LIB$STOP

;                               PSECT SUMMARY
;
;       Name                    Bytes                           Attributes
;
;  $OWN$_DZRO                     4940  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;  $OWN$_CRF                      1821  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;  $PLIT$                          703  NOVEC,NOWRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;  $CODE$                         3896  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)

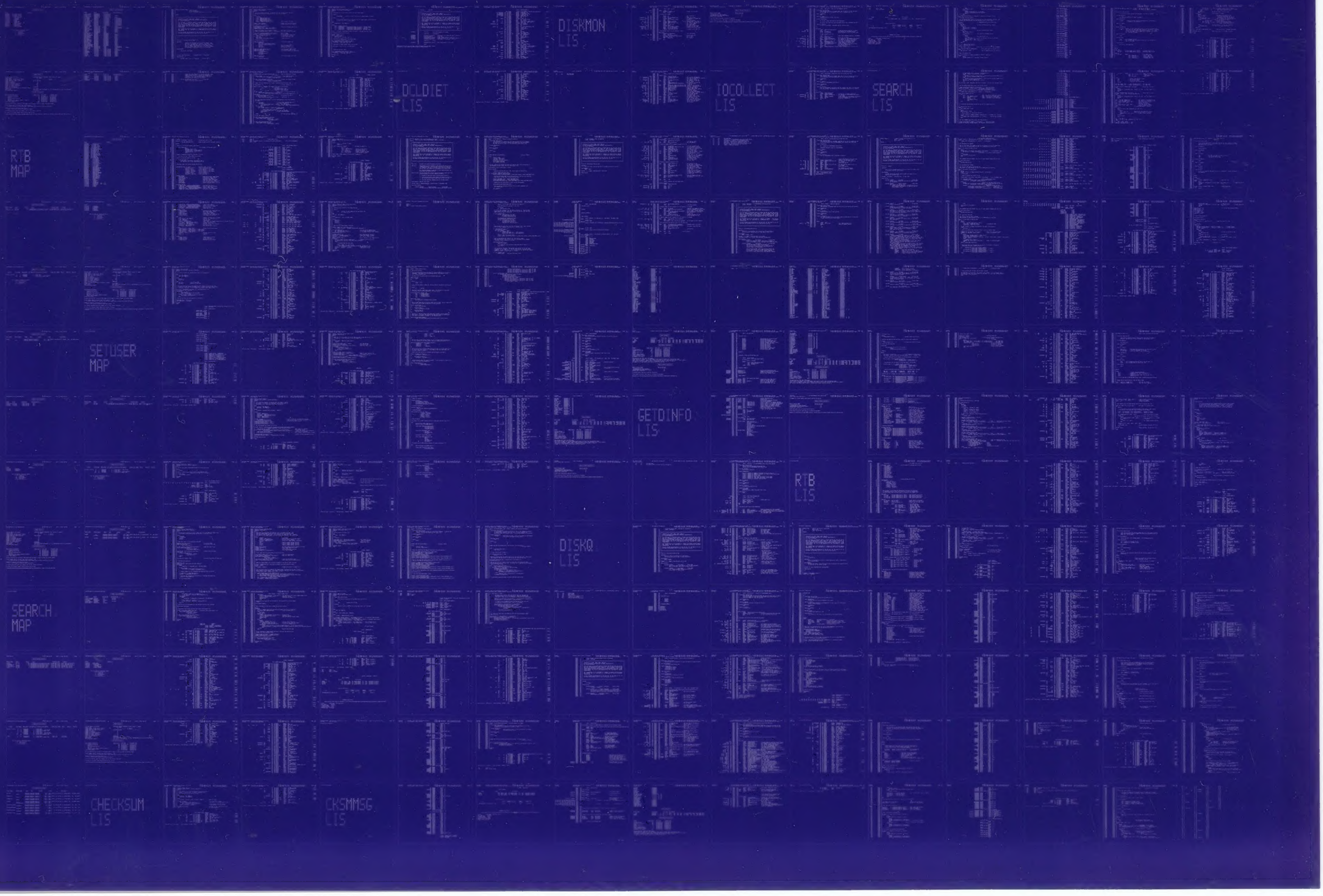

;                             Library Statistics
;                                      -------- Symbols --------      Pages       Processing
;       File                           Total    Loaded   Percent      Mapped      Time
;
;  _$255$DUA28:[SYSLIB]STARLET.L32;1     9776       108         1         581       00:01.0



;                                       COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:SEARCH/OBJ=OBJ$:SEARCH MSRC$:SEARCH/UPDATE=(ENH$:SEARCH)

; Size:          3896 code + 7464 data bytes
; Run Time:        01:19.6
; Elapsed Time:    01:29.4
; Lines/CPU Min:    1748
; Lexemes/CPU-Min: 23398
; Memory Used:  451 pages
; Compilation Complete
```



LUV1ROM

PQBTDRIVR LIS

QUSS LIS

SEARCHMSG LIS

VMBUVAX1 MAP

SETUSER LIS

VMBUVAX1 LIS

BOOTDRUV1 LIS

FILERDUV1 LIS

BOOTIOUV1 LIS

CONIO LIS

NETBOOT LIS